Railway Age Gazette

SECOND HALF OF 1916—No. 18. SIXTY-FIRST YEAR

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Classified Directory of Advertisers, Page 6

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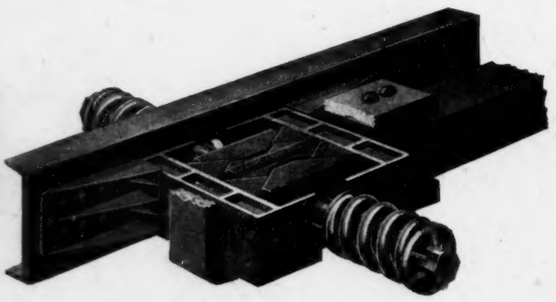

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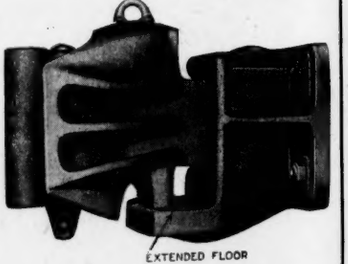

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Cleveland Chicago Indianapolis Toledo
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Railway Age Gazette

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Car Buying Heavy in October

Purchases of freight cars in the United States and Canada were heavier in October than in any previous month this year. According to our records, 21,034 freight cars were ordered in this period, as compared with 19,949 ordered during the same month in 1915. This makes the total of freight car purchases up to November of this year, 88,398, as against 70,798 for the same period a year ago. In no other month of this year have freight equipment purchases exceeded 10,000 cars, except in January and February, when over 14,000 cars were ordered. If the orders placed in November equal those placed during the past month the total purchases for the year will exceed the orders placed in 1915, i.e., 109,792. Locomotive orders reported for October, 1916, were only 87, as compared with 295 placed in the same month in 1915. Orders were reported in October this year, however, for 180 locomotives for export. The total purchases of locomotives for domestic use so far recorded, are 2,130, as compared with 1,612 reported for the entire year of 1915. Passenger cars are also showing up well, orders having been placed during October for 212 cars, this making the month the best during the past two years with the exception of one exceptionally good month, December, 1915, when orders for 422 cars were reported. The total orders for passenger cars reported thus far this year, exclusive of subway, elevated and Pullman cars, are 1,052, as compared with 996 in the first ten months of 1915, or with 1,467 for the entire year.

Bridge Floors and Track Circuits

The problem of safeguarding train movements over the Rock Island-Government drawbridge at Rock Island, Ill., referred to elsewhere in this issue, was an unusual one. The use of a steel trough floor on this through truss structure can readily be explained in the light of the facts that the presence of street traffic on a lower deck made a solid floor essential and that the trough floor with rails clipped directly to steel plates was then in favor on some roads, particularly for structures where vertical clearance was limited, as on track elevation subways. This design proved to have disadvantages, however, in its riding qualities and in maintenance, and improved types, utilizing either concrete slabs or ballast filled troughs have practically displaced it. The impracticability of maintaining electrical insulation between the rails and the steel floor was not an important consideration when this bridge was built, but the universal adoption of track-circuit control for automatic signals and the steady development in the application of such protection on all important lines has made it essential in any such structure to provide for the insulation of the rails if desired. The Rock Island has made the best of the situation and has greatly improved the protection at this point, but the work would have been simpler and better if the standard automatic signal protection could have been used. In present-day bridge work this consideration should be given due weight in the choice of a design for any steel structure, for, even though it may not be located in automatic signal territory when built, it is impossible to foretell when such protection may become desirable.

Southern Railway's New Financing

The proposal which the directors of the Southern Railway make for meeting the short term notes which will fall due in the near future and providing for permanently financing future needs of the property is a common-sense and fair facing of the change that has taken place in the market for railroad bonds. The mortgage under which the Southern Railway was to have done its permanent financing is that securing the outstanding $61,333,000 development and general mortgage 4 per cent bonds. This mortgage was made in 1906 and limits the rate of interest on any future issue of bonds under it to 4 per cent. Railroad bonds of the class of the Southern Railway's development and general mortgage bonds cannot now be sold bearing 4 per cent interest except at a very large discount. To create another mortgage junior to the development and general mortgage would be a complicated arrangement, but one which, if it were possible to sell bonds secured by this mortgage, would enhance the market value of the outstanding $61,333,000 4's. Bonds secured under it, however, could not be made attractive to investors. The lien on the railroad property would be too indirect. The Southern Railway management, therefore, proposes to create a new mortgage—the refunding and improvement mortgage, and give it the same lien as the old development and general mortgage—and all holders of the outstanding 4's are asked to exchange their bonds for bonds secured by the

new mortgage. As an inducement, their rate of interest will be increased from 4 per cent to 4½ per cent. There is every reason why the holders of the 4's should make the exchange, except that perhaps they might think that they could get a better bargain still from the management. It is to the interest of all of the security holders that the future needs of the property shall be financed fully and as cheaply as possible. The fact that the present holder of general and development mortgage 4's paid more for them than he would now have to pay for a 4½ per cent bond is no reason why he should not accept the fact of the change in bond market conditions, and by his acquiescence in the plan materially strengthen the credit of the Southern Railway, which, in time, should enhance the value of the new bonds which he will take in exchange for his old ones.

Railroad Collection Bureaus

An interesting paper—printed elsewhere in this issue—was read at the recent meeting of the Society of Railway Financial Officers, by H. W. Myers, manager of the Kansas City Railroad Collection Bureau. This bureau collects all bills for freight, demurrage, switching and other charges, except bills paid prior to the delivery of freight, for the 14 railroad companies entering Kansas City. Extension of credit is often used as an aid to the traffic department in securing business. Advocates of the bureau collection plan lay stress on the possibilities of the abuse of this practice. The possibilities are there, certainly, but local conditions determine how much danger there is in the actual practice. Theoretically a collection bureau in a city where a dozen or more roads enter ought to be able to make a considerable saving in the cost of collections. Mr. Myers frankly admits that a careful study of the cost prior to the establishment of the bureau at Kansas City was not made. He says, however, that there were 34 collectors in the service of the railroads at Kansas City, with some supervising collectors, the total payroll on this account amounting to approximately $2,800 a month, whereas the payroll of the bureau in September was only $1,633. The question, however, is not quite fully answered by this comparison. It could only be fully answered if each road were to determine with a fair degree of accuracy how much it had been able to cut down its payrolls in consequence of the establishment of the bureau. The fact that is easy to determine and is obvious is that each month each railroad company has to pay out a certain amount for the expenses of the bureau. It is quite true that it is no fault of the bureau if a railroad did not cut down its payroll when it no longer had to make collections for itself, but from the railroad point of view the bureau is a success only if it not only potentially but actually saves money to the road or makes collections much more satisfactorily, or does both. There is strong evidence that the working of the Kansas City Collection Bureau is satisfactory to Kansas City shippers, but it would be interesting to know just what each one of the 14 roads is saving by the elimination of individual collection expenses.

THE CONGRESSIONAL INVESTIGATION OF RAILROAD REGULATION

POSSIBILITIES of the greatest importance to the railroads of the United States are involved in the investigation of the entire subject of government control of transportation about to be undertaken by the congressional Joint Committee on Interstate Commerce. This committee, which is a sub-committee of the Senate Committee on Interstate Commerce and the House Committee on Interstate and Foreign Commerce, was appointed in accordance with a joint resolution adopted by Congress at its last session "to investigate the subject of the government control and regulation of interstate and foreign transportation, the efficiency of the existing system in protecting the rights of shippers and carriers and in promoting the public interest, the incorporation or control of the incorporation of carriers and of proposed changes in the organization of the Interstate Commerce Commission and the act to regulate commerce, also the subject of government ownership of all public utilities..."

Hearings are to begin at Washington on November 20 and the committee has outlined a tentative plan for its investigation which will require two years to complete. It is proposed to hold hearings in all parts of the country in order to give ample opportunity to all interested in, or having any information or opinions relating to the subject matter of the proposed inquiry to express their views.

The inquiry has been undertaken on the initiative of President Wilson, who, in a message to Congress on December, 1915, said that there has of late been reason to fear that our railroads would not much longer be able to cope with the transportation problem successfully, as at present equipped and co-ordinated, and suggested a commission of inquiry "to ascertain whether our laws as at present framed and administered are as serviceable as they might be in the solution of the problem" and "whether there is anything else we can do that would supply us with effective means in the very process of regulation for bettering the conditions under which the railroads are operated and for making them more useful servants of the country as a whole."

Senator Newlands, chairman of the committee, has outlined a tentative program for the investigation calculated to follow President Wilson's suggestion for a thorough reconsideration of the problem from all sides before further legislation in this field is attempted. Among the questions on which the investigation is expected to furnish enlightenment, according to this outline, are the following:

Whether the Interstate Commerce Commission is overloaded and whether its jurisdiction should be confined to questions of discrimination, rebates and rates, its jurisdiction over other subjects to be turned over to some other body;

Whether it is necessary to make any change in the organization of the commission with a view to prompt and efficient action;

Whether under the present system the credit of the common carriers is assured;

Whether government regulation of the issue of securities is advisable;

What is the effect of dual regulation by both the states and the nation of the rates of carriers;

Whether regulation of the wages and hours of employees is feasible or advisable;

Whether national legislation is required in the nature of national incorporation or national holding companies.

These questions and the details incidental to them, together with questions as to the advisability of government ownership, will constitute the principal subjects of the inquiry.

The railroads agree with President Wilson that there has been reason to fear that they would not much longer be able to cope with the problems presented to them without some improvement in the methods of regulation, and they also believe that our laws as at present framed and administered are very inadequate and unsatisfactory as a solution of these problems. By force of necessity they have been giving very serious consideration to the problem for some time and through the Railway Executives' Advisory Committee they have been preparing evidence to submit to the congressional committee, which they believe will furnish the answers to some of the questions suggested in Senator Newlands' outline.

In the first place, they hope to demonstrate that one of the principal defects in our present system of railroad regulation is the lack of co-ordination in the simultaneous and even conflicting regulation of the federal government and

of the 48 states, which has resulted in waste, discrimination, duplication and litigation and has restricted proper development of the transportation industry. They are, therefore, prepared to urge strongly a concentration of most of the regulating authority in the Interstate Commerce Commission, as the representative of the federal government, and a curtailment of the power of the state commissions, much of which is now exerted unintelligently and which, even when it is not open to that charge, is exercised in such a way as actually to interfere with the work of the federal commission while creating discriminations between the states and between state and interstate traffic and imposing useless, expensive and conflicting restrictions upon the carriers.

With a view to making possible this centralization of authority, they are prepared to advocate federal incorporation of interstate carriers so that a national system of transportation may be regulated without reference to state lines. For the purpose of properly co-ordinating the administration of this regulation, they will urge a reorganization of the work and of the personnel of the Interstate Commerce Commission. The commission now exercises the tri-partite function of prosecutor, judge and jury. It is proposed that the preparation and prosecution of cases against the railroads shall be put in the hands of some other agency of the government so that the commission may devote its energies to its administrative functions, and that the commission itself shall be enlarged and possibly organized into district commissions or sub-commissions for the handling of local matters, so that the main commission may be more free to consider the more important problems.

With the commission thus relieved of some of its present duties and equipped to handle its business more promptly, the railroads would urge a reduction of the period during which it is now authorized by law to suspend advances in rates.

It is believed that a reformation of the plan of government regulation along these lines would result in increasing the credit of the carriers by relieving them of some of the uncertainties which have made it so difficult for them to attract new capital into the railroad business and which will continue to do so as long as the individual states have the power to undo or interfere with the work of the federal commission.

The railroads are also prepared to advocate a law providing for government supervision of railway security issues, provided they can be emancipated at the same time from security regulation by the individual states.

Representatives of the state and interstate commissions, of shippers and commercial organizations, and bankers and economists, as well as representatives of the railroads and their employees, are to be given an opportunity to express their views before the committee. The advocates of government ownership of railroads may be expected to muddy the waters to a considerable extent and the members of the state railway commissions, who will not only be under fire but faced with the fear of losing their jobs, are already planning a fight against the idea of paramount federal control, but the railroads will find much support for their ideas among the shippers and various commercial organizations, many of whom have already adopted resolutions advocating exclusive federal regulation.

What the outcome of the investigation will be is, of course, uncertain. The committee will make its report to Congress and the entire railroad question will undoubtedly receive an agitation such as has not been witnessed since the Hepburn law was passed, but it is inconceivable that some improvement shall not result from this opportunity for a thorough presentation of the way our present patchwork of regulating laws has worked out and for a reconsideration of the entire subject from the new viewpoint afforded by the perspective of a quarter of a century.

THE WESTERN MARYLAND REORGANIZATION

FOR more than two years the Western Maryland, although technically operated by its stockholders, was out of the hands of a receiver only because holders of its $16,000,000 defaulted notes had not pressed their claims. The management now announces a plan of reorganization. This plan will leave undisturbed the $50,000,000 bonds of the present company; will call for the immediate sale of $5,000,000 new 5 per cent bonds, the issue of $18,000,000 new first preferred 7 per cent stock, $10,000,000 second preferred non-cumulative 4 per cent stock and $50,000,000 new common stock; a payment in cash of the overdue interest on the outstanding notes, and the payment in cash in full of the principal of these notes, and the cancellation through exchange of the present $10,028,000 preferred stock and $49,429,198 common stock, and the distribution of $3,960,000 Davis Coal & Coke Company stock and $4,500,000 Monongahela Coal Lands Company stock. The holder of the present preferred stock is asked to exchange it at par for new second preferred 4 per cent stock and is given the privilege of subscribing pro rata at par for new 7 per cent preferred (cumulative after July 1, 1918), with which preferred stock he will receive without additional payment his proportionate share of the Davis Coal & Coke Company stock and the Monongahela Coal Lands Company stock. Holders of the present common are asked to exchange it for new common and are given the same privileges of subscription for new preferred and coal company stock as holders of the old preferred. A holder of one share of either preferred or common who made the exchange and exercised his privilege of subscription would get one share of new preferred or common, as the case might be; $30 par value of new first preferred; approximately $7 of Davis Coal & Coke Company stock, and approximately $8 of Monongahela Coal Lands Company stock.

Western Maryland common has sold recently in the neighborhood of 30 and preferred in the neighborhood of 53. In the fiscal year ended June 30, 1916, the Western Maryland, after charging the interest due on its $16,000,000 notes, earned about 5 per cent on the present $10,000,000 preferred. Assume that the holder of this preferred exchanges for new second preferred without exercising his option of subscription. If earnings were to be the same in 1917 as in 1916 nothing would be shown as earned on the second preferred. If he does not exercise his option to subscribe to new preferred, the holder of the present preferred, who makes the exchange, will apparently be further away from dividends after the reorganization than he was before, with this difference, however: That he will have stock in a solvent company, which is no longer at the mercy of creditors, instead of in a company which could be put at any moment into the hands of receivers.

Let us assume, however, that the preferred stockholder not only exchanged his old stock but also exercised his option to subscribe. If earnings were to be the same in 1917 as in 1916 and the plan were to go through, almost the full 7 per cent dividends would be earned on the new preferred. The Davis Coal & Coke Company stock represents ownership in a leasing and operating coal company. The Monongahela Coal Lands Company stock represents ownership in reserve coal lands and in certain coal company bonds, the interest on which is enough to pay the taxes on the reserve coal lands. Apparently in 1916, the Davis Coal & Coke Company earned about 5 per cent. Assuming that this is so, for an additional investment of $30 the holder of present preferred stock would get $30 par value of new preferred, which ought to pay 7 per cent at least within two years, and $7 of the Coal company stock, which may pay 5 per cent, and $8 of the Coal Lands company stock, which will not pay any returns in the near future, but represents substantial assets.

To the preferred stockholder who does not exercise his option of subscription, the plan will hardly look very favorable. It would not seem likely that the new second preferred would sell as high as 50. On the other hand, the subscription rights appear to have a very real value. The holder of a single share of old preferred exercising this right would pay in all about $83—$53 in his old preferred and $30 in cash. He would get one share of new second preferred worth something less than $50, a fraction of a share of new 7 per cent cumulative preferred worth three-quarters of its par value, say, $23, and Coal company and Coal Lands company stock worth together something over ten dollars. To the holder of present Western Maryland common the advantages of subscription to new first preferred and coal company stock are the same as to the holder of old preferred. A greater part of the Western Maryland stock is supposed to be held by John D. Rockefeller and his associates, but in fairness to the small holder of preferred or common some provision might well be made by which he could exercise his option of subscribing for new first preferred and Coal company stock by means of a loan to be paid back in small payments. Were such a provision to be added to the plan it would appear eminently sound and satisfactory.

EL PASO & SOUTHWESTERN

THE El Paso & Southwestern is in many respects a picturesque railroad, unlike any other thousand mile railroad in the country, but one which is very well operated. It has the distinction of having been earnestly sought after by the late E. H. Harriman, but he was unable to get control of it. Operating a mountain railroad into the copper mines, where in some cases there are 33 deg. curves, the operating ratio and the transportation ratio are low. With an imposing array of very wealthy New York men as its chief executive officers, it is actually operated by its general manager, with headquarters in El Paso.

The mileage operated in 1916 was 1,027. The northwestern part of the system runs into the copper mines of Arizona and a large part of the freight traffic is furnished by ores outbound and bituminous coal inbound to the mines. The road is controlled by the same interests which control the Phelps, Dodge & Company copper properties. The main line from El Paso, Tex., to Tucumcari, N. M., forms the connecting link between the southwestern end of the Chicago, Rock Island & Pacific and the Southern Pacific, and over this line passes all of the Rock Island's freight and passenger business for California that goes by the southern route.

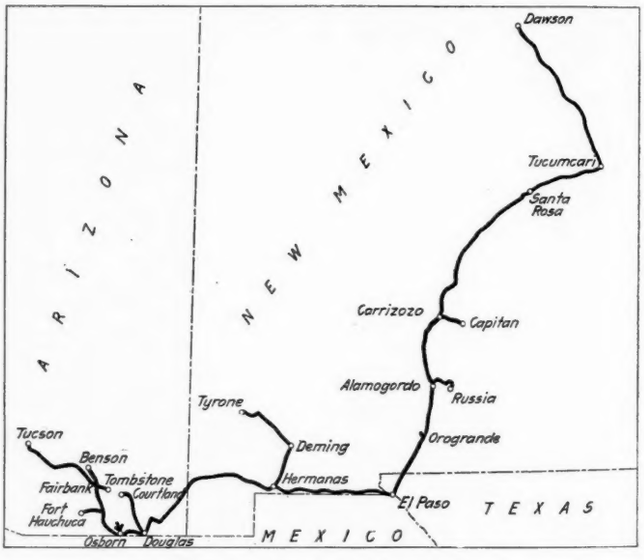
In the fiscal year ended June 30, 1916, total operating revenues amounted to $10,672,000, or at the rate of $10,390 per mile of road. These are the largest earnings in the history of the property and in comparison with the lean year 1915 show a very heavy increase. Freight revenue amounted in 1916 to $8,439,000, an increase over 1915 of 43 per cent, and passenger revenue to $1,643,000, an increase over 1915 of 24 per cent. The total operating expenses amounted to $5,924,000, an increase of 25 per cent over 1915. Not only did the road derive very largely increased revenues from the increase in output of the mines, but it also had largely increased revenues resulting from the movement of troops and supplies to the Mexican border. The increase in passenger revenues was very largly accounted for by this circumstance.

The total ton mileage of revenue freight carried in 1916 was 892,419,000, giving a freight density of 869,000 ton-miles. The average length of haul was 169 miles in 1916, comparing with 179 miles in 1915, and the average receipts per ton per mile were the same in both years—9.5 mills. It is rather interesting to note that with a larger percentage of ores carried the trainload was less in 1916 than in 1915, the 1916 figure being 411 tons, and the 1915, 441 tons. Probably with the incentive that there has been to work the mines to the limit of their capacity, fuel for the mine would be run in short trains wherever it was necessary to do so to prevent any fuel shortage. Then, too, for part at least of the haul of the ore it is not practical to get heavy trainloads. Of the total 5,380,000 tons of all traffic carried in 1916, 49.92 per cent was ore. This compares with 41.49 per cent of the total 3,605,000 tons carried in 1915. It is also interesting to note that the operating expenses per revenue train-mile for freight were slightly less in 1916 than in 1915, namely, $1.80 in 1916 and $1.81 in 1915. Notwithstanding the smaller trainload, operating expenses in 1916 compared favorably with 1915.

The following table shows the percentage of each class of expenses to total operating revenues in the two years:

	1916.	1915.
Maintenance of way and structures	12.32	13.12
Maintenance of equipment	12.54	13.80
Traffic expenses	2.08	2.89
Transportation expenses	24.66	26.48
Miscellaneous operations	.71	.91
General Expenses	3.21	3.71
Transportation for investment—Cr	...	.19
Total	55.51	60.72

The El Paso & Southwestern pays 5 per cent on its $25,000,000 outstanding stock, calling for $1,250,000. There



The El Paso & Southwestern

was available for dividends in 1916 $2,568,000, comparing with $1,813,000, the amount available for dividends in 1915. The company had no funded debt in 1915, but had $3,000,000 of loans and bills payable. This was paid off during the year and there are now outstanding $2,000,000 of funded indebtedness. On the consolidated balance sheet the investment in road and equipment is carried at only $5,263,000, and the investment in affiliated companies at $31,574,000. Cash on hand at the end of the year amounted to $1,427,000, comparing with $903,000 on hand at the beginning of the year. There was a total spent for additions and betterments of $704,000.

The following table shows the principal figures for operation in 1916 as compared with 1915:

	1916.	1915.
Average mileage operated	1,024	1,024
Freight revenue	$8,438,925	$5,898,826
Passenger revenue	1,643,229	1,327,353
Total operating revenues	10,671,627	7,788,736
Maintenance of way and structures	1,314,373	1,021,496
Maintenance of equipment	1,337,981	1,075,214

Traffic expenses	221,241	225,199
Transportation expenses	2,631,995	2,062,308
General expenses	342,732	288,988
Total operating expenses	5,924,268	4,729,225
Taxes	471,367	400,743
Operating income	4,262,499	2,623,581
Gross income	6,199,940	4,028,701
Net income	2,567,749	1,812,647
Dividends	1,250,000	1,250,000
Surplus	1,317,749	562,647

CHICAGO & ALTON AND TOLEDO, ST. LOUIS & WESTERN

THE relations of the Toledo, St. Louis & Western and the Chicago & Alton are peculiar. The Toledo, St. Louis & Western, operating only 451 miles of road, owns a majority of the stock of the Chicago & Alton, which operates 1,053 miles of road. The smaller road is in the hands of a receiver, and yet in the fiscal year ended June 30, 1916, it earned and paid the interest on all its bonds, including the interest on the bonds which were issued to pay for the Chicago & Alton majority stock, while the Chicago & Alton, which is not in the hands of a receiver, not only failed to pay any dividends on its stock so as to help the Toledo, St. Louis & Western pay the interest on the bonds secured by this stock, but failed by $172,000 to earn its own fixed charges. The Toledo, St. Louis & Western has a credit balance to profit and loss of $2,530,000; the Chicago & Alton has a debit balance to profit and loss of $8,094,000.

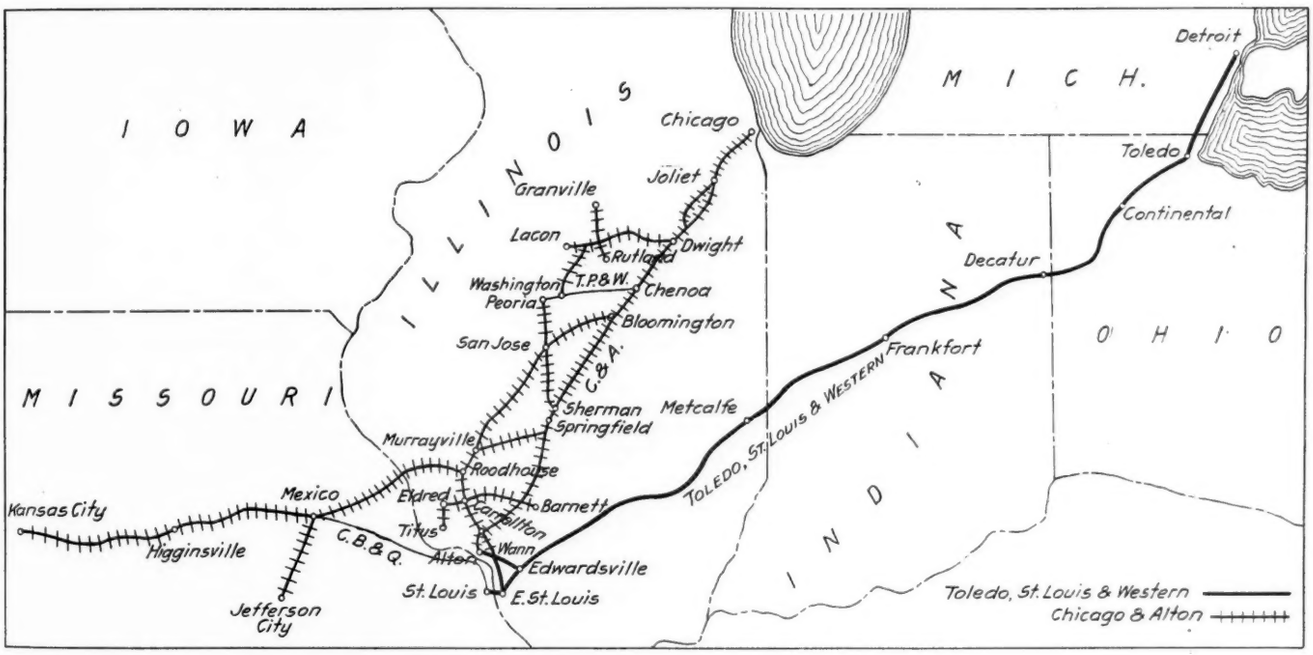
The total outstanding stock of the Chicago & Alton is about $40,000,000, of which $869,000 is cumulative 4 per cent prior lien stock and the remainder equally divided between non-cumulative preferred and common. The Union Pacific owns a little over $10,000,000 Alton preferred, and the Toledo, St. Louis & Western owns $6,480,000 Alton preferred and $14,420,000 Alton common. It has been by the help of loans made to it by the Union Pacific that the Alton has escaped receivership. The Toledo, St. Louis & Western bought its majority stock of the Alton in 1907, paying for it through the issue of $11,527,000 4 per cent bonds, maturing in 1917. The bonds are divided into two series, the "A" series being issued at par for the Alton preferred and the "B" series being issued for common stock at 35.

It is easily understandable that the Union Pacific should for strategic reasons desire to have a voice in the management of the Chicago & Alton with its line from Kansas City to St. Louis and Chicago. If separate and different interests had controlled the Alton and the Toledo, St. Louis & Western, the reasons for the purchase of the majority stock of the Alton by the latter would have hardly been apparent. As it is now, former holders of Alton stock who exchanged for Toledo, St. Louis & Western bonds are getting interest on their investment, that is, sharing in the earnings of the Clover Leaf, where they certainly would have gotten no dividends from the Alton had they not had an opportunity to make the exchange.

A comparison of the showing made by the two roads in the fiscal year ended June 30, 1916, emphasizes strongly the peculiar features of the case where the apparently solvent road is in the hands of a receiver and the insolvent road operated by its own management.

Total operating revenues of the Toledo, St. Louis & Western, which is being operated by W. L. Ross, as receiver, amounted to $5,643,000, an increase of 21.73 per cent over 1915, and an average of $12,525 per mile. Total operating revenues of the Chicago & Alton amounted to $16,074,000, an increase of 14.60 per cent over the previous year, an average of $15,511 per mile of road. Total operating expenses of the Clover Leaf amounted to $3,624,000, an increase of 3.63 per cent over 1915, and total operating expenses of the Alton amounted to $11,602,000, an increase over 1915 of 4.78 per cent. The percentage of operating expenses to operating revenues of the Clover Leaf was 64.22 in 1916, and of the Alton, 71.07. The Clover Leaf gets an average ton-mile rate for its freight of 5 mills and an average rate per passenger per mile of 1.1 cents. The Alton's ton-mile rate is 6.18 mills and its rate per passenger per mile, 1.92 cents.

The passenger business of the Toledo, St. Louis & Western is carried on at an absurdly heavy loss. The total passenger service train revenue per train-mile for the Clover Leaf was 75 cents in 1916 and 68 cents in 1915, and the corresponding figures for the Alton were $1.36 in 1916 and $1.35 in 1915. The Clover Leaf had an average of between 42 and 43 passengers per train-mile in 1916 and between



The Chicago & Alton and the Toledo, St. Louis & Western

28 and 29 in 1915; the Alton an average of between 58 and 59 in 1916 and between 57 and 58 in 1915. The passenger business of the Alton is not as much more profitable, or rather not as much less unprofitable, as would be indicated by the passenger train-mile figures. Much of the Alton's business is high class and a very expensive service to perform. Especially is this so between Chicago, Ill., and St. Louis, Mo.

The average trainload of all freight for the Clover Leaf in 1916 was 527 tons, comparing with 473 tons in 1915. The average for the Alton was 510 tons in 1916, comparing with 454 tons in 1915. With an increase in total ton mileage carried of 21.67 per cent and in passenger mileage of 50 per cent, there was an increase of 3.89 per cent in the transportation expenses (out of pocket cost of doing the business) for the Clover Leaf; and with an increase of 25.46 per cent in the ton mileage of revenue freight carried and of 3.03 per cent in the passengers carried one mile there was an increase of 5.07 per cent in transportation expenses for the Chicago & Alton.

The following table shows the principal figures for operation for the Toledo, St. Louis & Western and for the Chicago & Alton for the year 1916 with comparisons for the year 1915:

	Clover Leaf		Alton	
	1916	1915	1916	1915
Average mileage operated.	451	451	1,052	1,050
Freight revenue $4,928,512		$3,984,042	$11,126,697	$9,200,547
Passenger revenue	387,949	330,384	3,929,506	3,839,893
Total operating revenues.	5,643,365	4,636,059	16,325,288	14,245,624
Maintenance of way and structures	656,200	573,700	1,849,002	1,647,541
Maint. of equipment..	823,580	844,225	3,421,351	3,334,943
Traffic expenses	195,810	199,811	430,103	436,498
Transportation expenses	1,849,729	1,780,396	5,480,917	5,216,447
General expenses	100,824	98,822	369,629	361,520
Total operating expenses.	3,623,892	3,496,954	11,601,794	11,072,708
Taxes	208,068	250,182	566,839	508,839
Operating income	1,808,438	888,922	4,147,140	2,660,584
Gross income	1,919,178	1,032,615	4,401,322	2,757,821
Net income	323,689	530,482*	171,578*	1,690,156*

*Deficit.

CHICAGO GREAT WESTERN

THE Chicago Great Western earned its 4 per cent dividend on preferred stock in the fiscal year ended June 30, 1916, but paid, however, only 2 per cent. The preferred dividends became cumulative on June 30, 1914, and since this is the first payment, there has been 2 per cent paid to date out of the accrued 8 per cent (cumulative) dividends. It was estimated in 1909, when the Chicago Great Western was reorganized, that with earnings of $10,000 per mile or more, the company could pay 4 per cent on its outstanding $43,868,000 preferred stock. In no year, however, until 1916 did the road earn as much as $10,000 per mile. At present its earnings are at a rate considerably better than this.

President Felton believes, and the company's showing in 1916 bears him out, that the physical plant and equipment of the Chicago Great Western are sufficient to handle a considerably larger business than would yield $10,000 per mile of gross revenue. If there is no serious setback in business in the territory served by the Great Western, 1916 will apparently mark the beginning of the period of earnings which the reorganizers of the road had hoped and expected would begin somewhat earlier.

In the fiscal year ended June 30, 1916, total operating revenues amounted to $14,830,000, an increase of 8 per cent over the revenues of 1915 and an average per mile of road operated of $10,352. Operating income amounted to $3,787,000, and net income available for dividends to $1,764,000. The full 4 per cent dividends on the preferred would have called for $1,755,000. While the progress, in gross earnings, at least of the Great Western, has not been as rapid since 1909 as the financial interests which reorganized the road hoped that it would be, it is nevertheless striking. Gross per mile of line in 1909 was $7,322. Every year showed some gain over the previous year, and gross per mile in 1916 was 41.38 per cent larger than in 1909. The operating ratio in 1909 was 84.63. This has been brought down to 71.19 in 1916. The revenue per ton per mile in 1909 was 6.88 mills, and has been above that in each year since, until 1916, when it was 6.84 mills. The revenue per freight train mile was possibly the most striking figure of all. In 1909 it was $1.95. Every year it showed an increase over the previous year, until in 1916 it was $3.77, or nearly twice as great as in 1909.

The average total freight train load was 326 tons in 1909 and showed an increase every year over the previous year, until in 1916 it was 610, an increase over 1909 of 87.26 per cent. Even passenger revenue has shown an improvement. The revenue per train-mile in 1909 was 86 cents; in 1916 it was $1.27.

The gain in trainloading in 1916 as compared with 1915—36 tons—was helped to some extent by a better balanced traffic, the loaded cars per freight train being 29.25 in 1916 and 28.17 in 1915, and the empty cars per train being 10.84 in 1916 and 12.95 in 1915. The percentage of

The Chicago Great Western

empty to total freight car mileage was 27.05 in 1916 and 31.49 in 1915. The Great Western has a rather unusually high percentage of helper or double-heading locomotive mileage. The percentage of locomotive-miles in excess of train miles was 20.56 in 1916 and 17.46 in 1915. With as heavy trainloading, however, as the Great Western gets, and with its grades scattered as they are, necessitating in many cases long helper engine runs, with the consequent light run returning, the high percentage of light and helper engine mileage is explainable. During the year 1916 the Chicago Great Western received ten new Mikado freight locomotives and has ordered seven Santa Fe type locomotives.

Total transportation expenses in 1916 amounted to $5,258,000, an increase of only $107,000 over the previous year, or only slightly more than 2 per cent. The ton mileage of revenue freight in 1916 was 1,534,000,000 an increase over the previous year of 11.13 per cent. The pas-

senger mileage was 163,000,000 in 1916, an increase over the previous year of 3.47 per cent. In addition to the saving made by heavier trainloading there were economies directly traceable to what might be called the application of scientific principles. It is estimated that a saving of over $22,000 was due to the installation of a plant for reclaiming and repairing track materials and tools; a saving of $39,000 was made by the use of gasolene section cars as compared with the old hand cars in use some years ago. It is estimated that the modern coaling stations are now making a saving as compared with the stations which they replaced of about $31,000 a year and that the gasolene oil and electric engines used at water plants are making a saving as compared with the old steam plants which they replaced of about $26,000 a year. There was $189,000 paid in 1916 for loss and damage to freight, a decrease of $11,000 as compared with 1915, or 5.39 per cent. There was $145,000 paid for injuries to persons in 1916, a decrease as compared with 1915 of $23,000, or 13.87 per cent.

The total tonnage of revenue freight carried in 1916 was 5,960,000, an increase of 317,000 tons, or 5.62 per cent over the previous year. It must be remembered that 1915 was a good corn crop year. This is one explanation of why the Great Western, which carries a very large tonnage of corn, did not show a greater gain in tonnage of products of agriculture in 1916 as compared with 1915. The total tonnage of products of agriculture in 1916 was 1,664,000, or 27.92 per cent of the total tonnage of all products in 1916, and 1,593,000 tons, or 28.24 per cent of all products carried in 1915. The tonnage of manufactures showed a large gain, the total in the year 1916 being 1,416,000 tons, or 23.75 per cent of the total tonnage of all products, comparing with 1,221,000 tons in the year 1915, which was 21.63 per cent of the total tonnage of all products in that year.

Industrial development of the territory tributary to the Great Western was unusually great in 1916. Among other new sources of traffic there was a grain elevator of 20,000 bushels capacity, and a warehouse and coal sheds with a steel storage tank for 10,000 gallons of fuel oil built at Byron, Ill.; a packing plant with a capacity for slaughtering 2,000 hogs a day has just been completed at Faribault; an elevator with 100,000 bushels capacity is being built at Minneapolis on the Great Western property; a boiler construction plant has been built adjacent to the tracks of the company at Omaha; and a new warehouse for paper stock has been built at Omaha on land leased from the Great Western.

At the end of the year the Chicago Great Western had $2,239,000 cash on hand, with no loans and bills payable. No new securities were issued during the year, and there was a net additional investment in road of approximately $705,000.

The following table shows the principal figures for operation during the year 1916 as compared with the year 1915:

	1916	1915
Average mileage operated	1,456	1,428
Freight revenue	$10,492,684	$9,645,527
Passenger revenue	3,280,656	3,074,050
Total operating revenues	15,067,345	13,920,685
Maintenance of way and structures	1,983,135	1,876,924
Maintenance of equipment	2,436,353	2,398,216
Traffic expenses	546,487	561,526
Transportation expenses	5,257,979	5,150,730
General expenses	406,925	384,092
Total operating expenses	10,716,498	10,446,567
Taxes	553,129	580,026
Operating income	3,787,049	2,889,931
Gross income	3,984,544	3,136,149
Net income	1,763,994	868,194
Dividends	877,343	.....
Surplus	886,651	.....

Letters to the Editor

OUR UNBUSINESSLIKE TRAIN SERVICE

MEMPHIS, Tenn.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

The eight-hour day will have an important effect on the public as well as the railroads. In 30 years' association with train and enginemen it has been my observation that there are several classes of them, when considered from an efficiency standpoint. There will always be differences in the ability of men in all kinds of business, but in almost every business employers have more latitude in making promotions. Most of the men in the train and engine service are originally chosen from among young men living along the line who are desirous of becoming railroad men. Many of them make excellent railroad men, while some make very poor ones. But almost all of them, good and poor, are able to hold on, and finally their turn comes for promotion to conductor or engineer. Regardless of their natural ability, if they are able to pass the required examinations, they are promoted to these positions. Those with ability and ambition make good. The others manage to do enough to keep from losing their positions, but do not do their work in a manner that would justify their retention in the service if the railroads were operated as most business is operated.

On most railroads in the west the ambition of the great bulk of the men in the train and engine service was killed when the seniority rule was adopted; or, if it was not, it certainly will be now.

A brakeman or a fireman entering the service of a railroad, by close figuring could tell very nearly how many years it would be before he could become a conductor or an engineer regardless of his merit or ability, as compared with any who were a little older in the service, for as long as they did enough to hold their job they were in line for promotion ahead of him.

This has had a bad effect on the rank and file of the train and engine service; bad for the railroad, and, in turn, bad for the public.

The 10-hour day was based on averages. The first-class man does not use all of this time in making his 100 miles; the second-class man uses it all, and the poor man uses a little more; so that the granting of the new rate will not help the good men, if they remain as ambitious as they have been, but will result in the poorer men getting a large increase in pay. A first-class crew will take a tonnage train over a 100-mile division in from 5 to 8 hours, while the poor man will use probably 10 hours making the same trip, and unless an officer is on the train he will have so many plausible excuses for using this time that the crew cannot be blamed for the poor time made.

Suppose the rate of pay is five dollars a trip and they make 30 trips a month; the good crew will draw $150 and the poor crew will draw for their month's work $206.55. The good crew will have made their trips without delaying themselves or any other train, using less fuel and with probably less damage to equipment, but they must do it for less money.

Does any one think for a minute that such a condition will have the effect of making any man better? This condition exists to some extent on every railroad in the country, and now it will become worse because many good men will become disgusted on account of their ability not being recognized, and use as much time as the poor man.

The only rational remedy is to abolish seniority, except when ability is known to be equal, and to make the rate of

pay for overtime less per hour than the regular rate. Promote only such men as have shown loyalty to their employers and ability and desire to assume increased responsibilities. Increase the pay a little, if thought best, but retain the ten-hour basis. If any premiums are to be paid let us pay them to the men who make miles instead of those that make overtime.

Of course, on local runs, pusher service or in yards, where overtime is figured as a part of the day's work, regular rate per hour should also be paid for overtime made.

GENERAL MANAGER.

PRAISE FROM "OLD TIMER"

MINNEAPOLIS, Minn.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

Many of your readers believe that "Observer" in your issue of October 6, page 587, hit the proverbial nail squarely on the head when he spoke of your editorial independence and your fair and square utterances.

To an old time reader, your editorials "Was it a Political Frame-up?" and "The Triumph of Mobocracy" were models of clear vision and brave expression. They will live long in memory.

I am reminded of the story of old Jim Hinkins, a sheriff down in Texas years ago, who always brought in his man, dead or alive, usually dead. A friend asked him once how he did it, and the reply was: "Well, I jest usually get a purty good aim—and then I keep right on shootin'."

Your aim is good, and you "keep right on shootin'."

OLD TIMER.

THE FARMERS' DIRECT GRIEVANCE

DENVER, Colorado.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

The firm and unanswering attitude maintained to the last by the managers and presidents of our railroads in the face of the recent mob which finally, through intimidation, won over the President and congress has created more genuine universal respect for them by thinking people than anything that has occurred in the history of the American railroads; and, moreover, it has set in motion the gray matter of untold numbers who have heretofore been drifting with the crowd through the "Psychology of Orthodoxy" which inhibits ratiocination and which is the curse of the world.

No man or set of men desire "peace at any price." Fairness must be tempered with firmness and character or it is not fairness. A thoughtful person, conversant with history, does not have to stretch his imagination greatly to see in the near future a subversion of our democratic form of government, and it may be that Hamilton, Macaulay and their followers were right in their contentions against democracy —near-pure—such as we have. It may be that we are not yet sufficiently advanced in the scale of civilization to succeed with it. Elbert Hubbard observed that a horse is safe until he gets frightened; then you can't even drive him out of the burning barn that is about to consume him. Fear has relatively the same effect on man. What is the cause of it? Same as in the horse: Lack of understanding. We must at least be charitable enough to credit President Wilson, and the members of congress who put through the Adamson bill, with mental myopia, induced by fear; and sympathize with them accordingly.

How many of them could have given a thought as to the further exodus from farm to city as a consequence of this temporary fiat, dazzling with gold—a small per cent of artisans? Agriculture, as the late empire builder, James J. Hill, continually and forcefully pointed out, is the basis of all wealth and prosperity, and it would seem that the very fact that its husbandmen necessarily must, in a relative sense, be sparsely scattered over the country, as opposed to the mob of urban life, was one of Nature's wise provisions. Thus the stability of her law of supply and demand is assured. Through the operation of this law, what at the beginning of the describing of the circle is a fiat, will on its completion, be a true or real value, at least relatively; but the agriculturist must suffer during the process. And, moreover, one of these vicious circles is scarcely completed before the mob forces the start on another.

If all the units of value of the world could always be raised or lowered concomitantly it would make no difference whether a trainman drew one or one hundred dollars a day; but, with particular unfairness to the farmer, the mob always has the advantage by making the start on this vicious circle; and the farmer is continually at a disadvantage. He must see a continued exodus from farm to city with consequences so painfully obvious.

Through this rule of mobocracy the mob is becoming in a sense a parasite on the brow of agriculture and consequently its own worst enemy.

The leaders of these unrestrained, lawfully organized mobs are necessarily men of a single selfish idea. They are monomaniacs, evolutions by fission from the producers, but now parasites on society in proportion to their arrogance. What is the lesson? What the remedy? The lesson is that these organizations and their intoxicated leaders must be made amenable to law, the same as other combinations. Where strife and fear enter, reason abdicates.

AGRICULTURIST.

A SWEDISH VIEW OF SPEED-SIGNALING

STOCKHOLM, Sweden.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

Lately there has been much discussion in the railway periodicals regarding signal matters, and the views of a European in this respect might be of some interest. In the U. S. A. the so-called "speed signaling" was first successfully introduced, and I believe that most railway men all over the world will sooner or later come to the conclusion that this is fundamentally right.

In the "three-position" signals, indicating "stop," "caution" and "proceed," however, only the first and third really give a definite instruction, whereas the "caution" indication leaves the interpretation largely to the driver.

It is evident that the driver of an express train and the driver of a slow freight train have a different way of interpreting the "caution" signal; further, the driver running behind time has a tendency to interpret "caution" signals more liberally than when he is well ahead of his schedule. The weakness of the speed signaling system as used in the U. S. A. thus consists in the flexibility with which the "caution" indication may be interpreted.

In the more complicated signaling schemes with several arms where "Proceed at medium speed," "Proceed at slow speed," etc., are also signaled, the inconsistencies seem to us over here still more pronounced, and I very much doubt if any real benefit arises from such a complication, or if a driver, when such complicated signal aspects are met with, under the stress of circumstances might not more easily fail to interpret them correctly, or make an error of apprehension.

It seems unquestionable to me that the automatic stop will soon be considered a necessity; also some device to keep the speed of the trains within the maximum speed limit considered safe for the section in question. It also seems to me necessary to find some solution to the problem of conveying a more definite instruction to the driver as to *what* speed a given "caution" signal really means; and also at the same time giving him a possibility of ascertaining if the speed of his train is below or above the desired speed.

HALVAR A. BERGGREN.

Railroad Credit and the Success of Regulation*

Federal Regulation Is Necessary But State Commissions Should Continue to Regulate Local Public Utilities

By A. J. County
Vice-President in Charge of Accounting, Pennsylvania Railroad.

I AM here to exercise the right of a railroad man to utter his own views and not those of his company on current events. Railroad regulation must encourage sound credit, or regulation is a failure.

Foresight, courage, prudence and ability are required to found sound credit. Efficient and honest business management and trained and loyal working organization are essential to retain it. I assume this Association will endorse Bailie Jarvie's conclusions as to credit as expressed in Sir Walter Scott's Rob Roy, at a time when honor meant a ready sword to avenge insults, real or fanciful:

"We ken naething here (in Glasgow) but about credit. Honor is a homicide and a blood-spiller that gangs about making frays in the street; but credit is a decent honest man that sits at home and makes the pat play."

Sound credit is just as essential in the railroad business as in mercantile affairs. A railroad cannot have credit without the earning power to produce a credit basis. Railroad credit would scarcely concern the public at all if the railroads were not a part of the daily life of the country, and if their ownership of over sixteen billions of dollars was not widely held by all classes of citizens. If we did not have public ownership of the railroad lines, through money furnished by a great army of upward of 50,000,000 people, consisting of individual investors in railroad securities,savings bank depositors, building and loan associations, and insurance policy holders, to say nothing of charitable and many other institutions, then railroad credit would be an academic discussion. If the financial condition of the railroads did not mean loss or profit to the country, we would not have so many hearings accorded to railroad men.

If these railroads did not employ nearly 2,000,000 men, who, with their families, represent about 9,000,000 people, and did not pay over a hundred and fifty millions of dollars annually as taxes into the public treasuries, and many more millions for materials and wages, we might consider the railroad transportation service as a side issue and not a gigantic industry to be fostered and expanded.

As transporters, consumers, employers, taxpayers, and national institutions in which our government, our citizens, our savings bank depositors and our insurance policy holders are interested, the railroads require national attention.

Serious Effect of Weak Credit

It is unnecessary to argue that these railroads can exist without sound credit. We have just tried such an experiment and it has failed. Let us not forget that experience but profit by it. In about eight years, their credit gradually weakened and finally became impaired. The kernel of the railroad question, and the grave responsibility of railroad managements for several years past, has been the vanishing credit margin. The situation reached a climax reflected by the conditions in 1914 and 1915 when less new railroad mileage was constructed in this country than in any year since the Civil War, and when approximately over one-sixth of the railroad mileage of the country was in the hands of receivers, and when revenues and expenses were seriously reduced, new work stopped, and thousands of unemployed men were evident in all of the large cities, and our industries were in a serious plight. From that discouraging position it required an unfortunate world-wide war to arouse us.

Signs are multiplying that we have more public sympathy now with us, and that we have a better credit basis at our disposal than for many years.

Now you hear a great deal of the many millions of increased earnings the railroads are making compared with a year ago. That is exceedingly gratifying. Railroad earnings had fallen so low that they could not do otherwise than show an increase.

Profit Not Excessive

Look at a strong road like the Pennsylvania. In 1914, it earned 6.8 per cent upon its capital stock, or less than one per cent in excess of its reasonable dividend payments. In 1915, despite the increased traffic resulting from the war, it earned 8.5 per cent, or only 2.5 per cent over dividend requirements, which is not a high margin of safety. In 1916, we expect to earn 10 per cent on the stock, and we will doubtless spend every cent earned above our dividend requirements for betterments heretofore postponed. You business men have been told that many railroad stocks have been watered, and, while that does not apply to Pennsylvania Railroad stock, you will, nevertheless, ask what is being earned by the Pennsylvania Railroad upon the cash spent for the railroad and its rolling stock provided for public use. You ask that question concerning your own affairs. In railroad accounting we call this the "property investment" account, and the answer to the same question put to the Pennsylvania is that in this active year 1916 we will earn less than six per cent on the total cash invested in the road and equipment furnished for public transportation purposes. In 1915 the return was 4.81 per cent and in 1914, 3.78 per cent. I am not now making any plea for greater revenue, but is six per cent too much to earn in order to pay a fair return on capital and leave something over for improvements? It is so much greater than 3.78 per cent that it feels munificent, but it certainly is not excessive.

How can the Pennsylvania Railroad afford to continue in business with these results? The answer is not difficult. The financial policy of the company from its foundation has been that its capital stock shall be fully paid in cash; that fair but regular dividends shall be paid thereon, and that the remaining surplus shall be used for improvements to its railroad and equipment, instead of paying large dividends and selling stock and bonds to provide such improvements, additions and betterments.

In 1854 the book cost of the company's road and equipment was practically the same as in 1867—13 years later—notwithstanding about $7,000,000 had been spent in those years for additions and betterments paid for from surplus earnings. At the end of 1915 I am safe in saying that over $140,000,000 of surplus earnings or profits have been used in this way, for which no stock or bonds have been issued. By adherence to that policy the company has maintained a sound credit basis.

The improved condition of the railroads is most welcome. Railroad prosperity is reflected in all lines of business. In the railroads we have effective business instrumentalities, charging the lowest freight rates in the world and paying the highest wages in the world. We want good service and

*From an address delivered before the Philadelphia Credit Men's Association, October 24, 1916.

railroads charging reasonable rates, possessed of sound credit and sufficiently prepared for any emergency, whether it be moving an abnormally large commerce in time of peace, or performing the many indispensable transportation services necessary in time of war.

Your association will, I am sure, endorse the view as to the necessity for maintaining sound credit, but is it not equally essential in the public interest that railroad regulation be maintained and not crippled?

Government Inquiry Into Public Regulation

Without a constructive and unified policy, regulation will break down sound railroad credit instead of promoting it. The present system is disjointed, expensive and inharmonious federal and state regulation, and must be revised, and exclusive federal regulation substituted. The Philadephia Bourse, the Chamber of Commerce and other commercial organizations of this city have pointed the way to help remedy that situation. You know that a law was passed known as the "Newlands law," under which a joint sub-committee of the Senate and House has been appointed to investigate the subjects of government control and regulation of interstate and foreign transportation; the efficiency of the existing system in protecting the rights of shippers and carriers and in promoting the public interest; the incorporation or control of the incorporation of carriers; government ownership, etc. May I suggest that you consider joining with the other organizations of this city in making this investigation very thorough for reasons which you will appreciate?

About nineteen states are trying to regulate the issuance of securities, but by different methods. What is the benefit of several different states regulating the securities of one railroad company? Some states in approving of security issues of an interstate railroad company require that a certain amount of the money will be spent in their own state, while the issue of securities may be required for improvements in another state hundreds of miles away.

In another state, a heavy tax is laid on security issues, which, if levied to the same extent in the remaining states through which the road was constructed, would jeopardize the principal of the issue.

Then there have been cases where the orders of the Interstate Commerce Commission are practically nullified by the states in refusing to approve of them, so far as they affected intrastate matters, or by delaying so long in doing so that the order of the federal commission is practically negatived or modified.

We have 20 states regulating the hours of railway service, the variation running from 12 to 16 hours a day. Twenty-eight states specify headlight requirements, without any co-operation with one another. Fourteen states have different safety appliance acts. Some states have extra train crew laws, and others do not. The states and the federal government are investigating accidents and are duplicating each other's efforts at the expense of the railroads and the public. The railroads of the country are required to make over two milion reports a year to various federal and state authorities, a great many of which might well be abolished and many others curtailed; there are so many thousands of laws covering railroads in the states through which the Pennsylvania system passes that several thousands of them could be removed from the statute boks without detriment.

Is it any wonder that the railroads look to business men to get them a unified scheme of regulation under a single regulatory body, upon whom responsibility should be placed instead of the present divided responsibility? The federal government, under the committee clause of the constitution, has assumed the regulation of the interstate carriers and uses them to pay a large part of the government taxes, and we ask it not to leave its task half done, but to assume full responsibility. We call on the business men and the public, who are paying the cost, in their own interest to help the government inquiry in this matter. We ask you to get at the facts and ask congress to legislate the proper solution. We cannot believe that the public, with a knowledge of the facts, would remain indifferent, and continue to pay the cost of the needless duplications, conflicts and complexities in our present system of railroad regulation.

We estimate that since 1906 it has cost the Pennsylvania Railroad Lines East of Pittsburgh, alone, about nineteen millions of dollars to comply with new legislative enactments. That sum is equal to 6 per cent on over $300,000,000. I do not claim that all of this was wasted, but a great part of it could be saved and utilized for public purposes. Railroads recognize the many helpful features of regulation, but we want to see it raised above criticism, confusion and weakness. I believe regulation has passed through its weakest and worst stage.

State Commissions Essential to Regulate Public Utilities

I do not suggest that the states should be deprived of the usefulness of their commissions. The commissioners have tried to fully do their duty in accordance with the laws of their own state. They are hard working bodies not to be criticised because the federal and other state laws and regulations do not harmonize with their own. But if exclusive federal regulation is adopted, the commissions would still be occupied in regulating the state public service activities and corporations. They would in this manner be trained to become excellent federal regulators. Their continued regulation of so many electric traction companies and transit questions, water, gas, electric light and power companies means in any state a vast responsibility. In the city of New York alone it requires a separate state commission, one of the most active in the country. The upstate or second district commission of New York, in the year 1914 held 630 hearings, 298 entire days being actively devoted to such hearings. In 1914, over 2,500 complaints and applications were disposed of by the commission. This commission has under its jurisdiction 1,024 corporations. If the 159 steam railroad companies were regulated by the federal commission, is there not a serious remaining responsibility for that commission?

In Pennsylvania if we exclude all the steam railroads, it means the regulation of several thousand corporations with millions of dollars of capitalization, with their rates, service, and all other activities affecting over 7,000,000 people. I cannot escape the view, even eliminating steam railroads, that the Pennsylvania Public Service Commission has a responsibility of the highest magnitude, which will increase instead of decrease, and fully justifies all the compensation and honors they may receive.

Scope of Suggested National Regulation

Some of the features of any scheme of exclusive national regulation, which many statesmen, business men and railroad men are beginning to believe as essential, are the creation of a larger and stronger federal railroad commission, acting as a central body in Washington and through several regional commissions, so as to be close to the country's needs and facilitate the hearings on rate and other questions.

The scope of regulation includes rates, capitalization, railroad valuation, uniform accounting, and probably wages, because of their effect upon revenues; also safety appliance laws, hours of service laws, accidents, inspection of railroads, the character of the service, investigation and detection of any infractions of the law.

From this it is clear that if the proposed federal railroad commission is to be successful in carrying out its regulatory powers in constructive fashion, so that the railroads may properly serve the country and their credit be protected, the duties of detection and prosecution must be separated from its constructive and regulatory activities.

It is very apparent that the federal railroad commission should not be required on the one hand to constructively regulate railroads and encourage their expansion and protect their credit, and on the other hand be their accuser, prosecutor and judge. In all these matters the several regional commissions would be exceedingly helpful in disposing of questions pertaining to their own regions, and only in the event of an appeal from their decision would it come before the national commission in Washington. This is merely a suggested outline of the form this new legislation might take to facilitate railroad regulation. No final conclusions can be reached until after all sides are heard at the pending government inquiry.

In any event we need some definite standard to be enunciated by the commission by which it is possible for the public and the railroads to gage whether railroad rates are reasonable or unreasonable without the loss of time and great expense to both the shipper and the public that the present rate suspensions and hearings now involve, aside from the tremendous burden laid upon the commission itself. We need a regulatory policy that will permit the railroads to prosper with the country when prices are high and profits rise, rather than a policy which forces the railroads to apply for rate increases in times of depression when industries are bound in self defense to actively oppose such action. The commission should also have the right to fix minimum as well as maximum rates.

Finally, any scheme of paramount national legislation to regulate the national carriers, I think, must inevitably lead to federal incorporation of the national trunk lines, including their feeders. The present federal laws are largely prohibitive rather than permissive laws. They must be modified to meet the country's transportation necessities. In rate hearings, wage disputes, car distribution, and in many other features affecting traffic charges and service, no attention is paid to the individual companies that go to make up a railroad system. For instance, in the Pennsylvania system today there are over 100 companies; originally there were about six times that number. Many of them have special charter rights and others are under general laws. Some can construct branches and others cannot. The individual interests and finances of each of these lines which make up the large system, and their particular state laws, are not, and cannot be, specially considered by a federal commission in any of the larger railroad problems. Yet each of these companies stands as a separate entity before the law, with its own separate stock and bondholders who must be dealt with by the parent company. With the governmental control of revenues, and largely of expenses, and so many operating and traffic features, it does not seem, therefore, that any scheme of national regulation can be complete unless it permits, under federal charter, the full development of the territory served by the parent or system company, and the acquisition and merger of these various smaller companies into the larger system on some reasonable basis. This is necessary to secure the advantages of concentrated capital, administration and control, and eliminate the very detailed features of accounting, traffic and operation that must exist so long as the companies remain as separate corporate entities. That is just one phase of a big question.

Even if we get unified railroad regulation based on business principles, we cannot expect immediate perfection, for it takes time, experience and knowledge to solve their varied difficulties, but responsibility to the public and the railroads will be squarely placed on one set of regulators, and railroad credit will be strengthened by such action. The responsibility of public regulation is to see that the railroads charge rates that are reasonable and non-discriminatory and that such rates yield a fair return to the railroads so that they may render a proper and efficient service, and that no obstacle shall exist which may discourage investment in their securities. We are trying to give the public a clear conception of what is necessary to protect and promote its own vital interest in the transportation industry by laying the situation before the American public.

While railroads will be affected by business depressions, yet with increasing population and commerce, and with unified regulation under a federal commission to perform for them a constructive service similar to that which the Federal Reserve Board is constituted to perform for our financial institutions, then their credit is bound to be improved and stabilized, and railroad securities should again occupy the prominent position in the public confidence which they held for so many years.

To show that our railroads are worthy of that confidence, may I close with an opinion from a Frenchman, Monsieur C. Colson, who could criticise as well as appreciate:—

"In fine, the railways of the United States represent one of the most marvelous efforts of human industry to turn to good account the resources of a country. Through the rapidity of development and the decrease in transport prices—which is more important to a population spread over an immense area than to the crowded population of western Europe—the railways of the United States have made of this territory a country which has one common economic life. They have enabled places most distant from the sea to populate rapidly and to exchange their products with the chief centres of the old world.

"Notwithstanding the criticism which the many abuses evoked, the railways of the United States, without demanding of the state anything but liberty of action, have been the principal factor of its wonderful growth in agricultural, commercial and industrial power which may shortly attain world-wide supremacy."

SPECIAL PROTECTION FOR A DRAWBRIDGE

The Chicago, Rock Island & Pacific has recently installed a form of automatic signal and interlocking protection at the government drawbridge over the Mississippi river at Rock Island, Ill., which comprises a number of special features made necessary by the difficulties encountered. The government's interest in the structure lies in the fact that it connects an island, on which an arsenal is located, with the Iowa shore. For this reason the expense of building the bridge in 1896 was shared by the government and the railroad, and while it is operated by the government, the expense of operation is divided, as is also the responsibility and cost of maintenance.

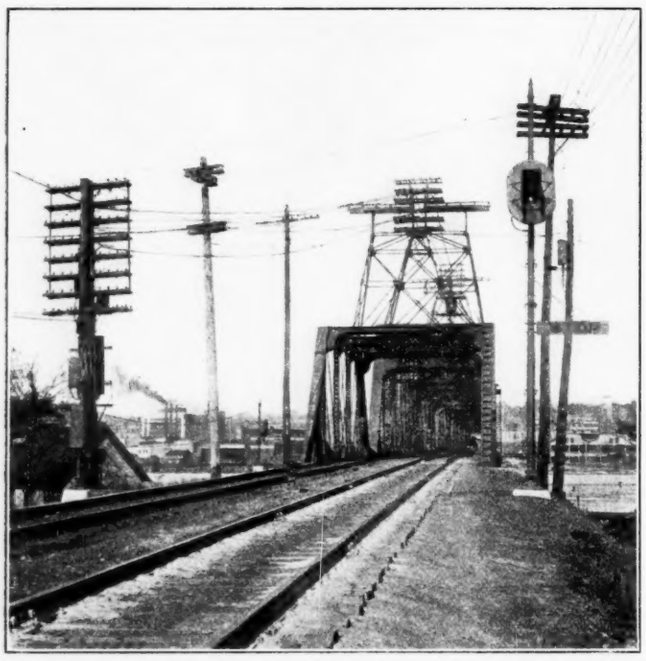
Although continuous automatic signal protection has been in service for sometime on each side of the bridge, it has never been extended across this structure, which is 1,850 ft. long with a 370-ft. swing span. Also until recently there was no interlocking between the drawbridge control and the signals at the end of the bridge. These signals were of the Hall disk type, controlled from the tower on top of the swing span, their control circuits being broken through the end jacks of the movable span in addition to the knife switches in the operating room, so that before the bridge could be moved, the signals would be set at stop even if the operator were to neglect to throw the switches.

An unusual difficulty confronted any plan to extend the automatic control of the signals across the bridge. The railroad tracks are laid on an upper deck with a roadway and an electric car line below. This makes it essential to maintain a solid floor on the upper deck and, in the design used, the rails are laid directly on transverse steel troughs without ties or ballast. Plans have been proposed at various times in the past for insulating the rails on the structure, but while it would doubtless be possible, it is easy to demonstrate that the expense would be prohibitive, both in first cost and maintenance. As about 3,000 train movements are handled across this bridge monthly, and it is opened on an average of 250

times a month for boats, the desirability of improving the signal and interlocking protection has long been realized. In addition to the impracticability of using track circuits, however, the unavoidable complications incident to negotiations with the government delayed a decision and resulted in the final adoption of a plan which under ordinary conditions might possibly have been further perfected.

The adopted plan utilizes "trap" circuits, i. e., short setting and releasing track sections, at the ends of the bridge, and comprises a number of special arrangements by which the control of the bridge has been interlocked with the new signal protection. Five new signals were included in the installation, two home, two dwarf for reverse moves, and a dwarf to repeat the indication of one of the home signals. It was desired to locate the home signals about 200 ft. from the ends of the draw span. As this span is the second from the east end of the bridge, it was possible to get a satisfactory location for the westbound signal just east of the end of the bridge, but the eastbound signal had to be mounted on the bridge superstructure.

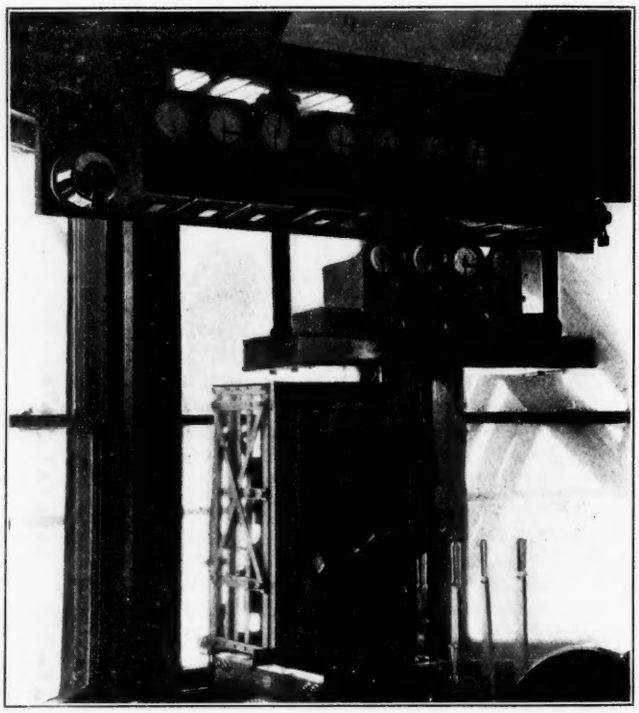
On account of considerations of clearance and visibility, it would have been practically impossible to use semaphore signals with satisfaction, and light signals were therefore adopted. The westbound home signal is mounted on a standard mast, but the eastbound had to be suspended between tracks from the west portal of the span next west of the draw-span. While this signal is visible from a distance, it cannot be seen by the engineman at short range, and a dwarf repeater was therefore mounted near the bottom of the



Home and Dwarf Light Signals at East End of Bridge

end post of this span, on the engineman's side. The back-up dwarfs are located on the bridge floor between tracks. All signals give two aspects, red and yellow, the most favorable indication being caution. They are normally red, being cleared by the bridge operator only on the approach of a train. All trains are required to stop short of the home signals, and then proceed at caution, if the light is yellow.

The rail locks on the movable span, which are easer rails moving longitudinally alongside the track rails and bridging the gaps between the movable and the fixed spans, are operated by air cylinders, as are also the end jacks; while the bridge turning mechanism is electric. In order to interlock the operation of the bridge with the signals, four circuit controllers equipped with levers like those used on electro-pneumatic machines were mounted over the mechanical levers controlling the pneumatic functions. Two of these circuit controllers govern the five signals, each lever having a left and a right position in addition to the center. The other two levers, operating only to the left, are mechanically interlocked with the signal levers, and are connected by vertical rods to locking which controls the air levers below. In order to move the bridge, it is necessary to have both signal levers on center. The circuit controller connected to the rail lock lever must then be thrown before that function can be operated pneumatically. This, in turn, allows the pneumatic lever controlling the end jacks to be released by the circuit



Interior of the Operating Tower Showing Indicators and Circuit Controllers

controller and then operated, after which the bridge can be turned.

To clear the signals, the pneumatic levers must be in the position corresponding to a closed and locked bridge, and locked in this position by the circuit controllers. After either of the signal levers is thrown to clear, a push button must be operated to complete the signal actuating circuit. Three such push buttons are provided for each signal, one in the tower, one on the track deck, and one on the turntable deck, thus enabling the operator to throw the signal lever, and then go below to work, pushing the most convenient button to let a train pass without the necessity of climbing back to the operating tower.

THE CANTON-SAMSHUI RAILWAY.—The Canton-Samshui Railway, a short line of only 30 miles, carried during 1915, 4,167,673 passengers and 8,187 tons of freight. The total receipts of the line were $302,636. It is considered to be one of the best paying lines in China for its size, as it connects Canton with Fatshan, a city of some 600,000, distant only about 12 miles, and the entire country through which it passes is well populated. No new roadbed was constructed during the year, but new station buildings, platforms and turntables were erected, and other improvements made in connection with the workshops and the roadway.

Traveling Engineers' Association Convention

Reports and Discussions on Mechanical Stokers, Superheaters, Handling Trains and Assignment of Power

THE twenty-fourth annual convention of the Traveling Engineers' Association was held at the Hotel Sherman, Chicago, October 24 to 27, inclusive, President J. R. Scott, assistant superintendent of locomotive performance, St. Louis & San Francisco, presiding. The secretary reported a total membership of 1,056 and the treasurer a cash balance of $4,080.75.

President's Address

The whole aim of this association is an educational one. It brings together trained men from all sections of the country, who by working under a variety of conditions, are in a position to exchange ideas, not only on the convention floor, while discussing subjects, but in casual conversation during intermissions, also in the exhibit room, while viewing the modern equipment so extensively brought before us for exhibition and inspection. The knowledge thus gained is disseminated by us to others, and especially to our enginemen. The exhibits are more extensive this year than ever before. With the modern power of today, we are confronted with many problems that did not exist with the smaller power of the past, and as new appliances are constantly taking the places of the old, it behooves us as traveling engineers, or representatives of our employers in whatever capacity, to so familiarize ourselves with all things surrounding our work, that we may be ever ready and willing to direct or assist others, as the occasion requires, and for which a convention of this character is most profitable.

As a direct result of the great European conflict, the cost of supplies of all kinds necessary for railroad operation, has soared high in price. This together with the increased wages of labor, and lack of corresponding returns with which to meet the abnormal operating costs has created a burden which falls most heavily upon all railroads. In order that we may do our part to assist in relieving this unusual strain, we as traveling engineers, should zealously guard the machinery, fuel and supplies under our charge, that the best possible use may be secured from them. More skillful operation of the locomotive on the road, and increased efficiency in the handling of trains are matters that will tend to reduce cost of operation. Therefore, we should give our attention and special effort to bring locomotive operation to the highest possible standard of economy and good service.

Another matter of unequalled importance is the question of the great railroad strike, which was recently threatened by the four brotherhoods, representing more than 400,000 trainmen and enginemen. Such a strike, regardless of the cause, would have been a calamity beyond words to express, or thoughts to imagine. Although men may differ in opinion as to the action taken to avert this strike, none should differ in opinion as to the importance of warding it off, or the necessity of greater preparedness by national law, to protect the one hundred million people of this nation, their transportation facilities, their properties and industries.

Address by Mr. McManamy

Frank McManamy, chief inspector locomotive boilers, Interstate Commerce Commission, addressed the convention during the Wednesday morning session. He spoke chiefly on the locomotive inspection rules, calling attention to the fact that the railroad company was held responsible for the general design, construction and maintenance of the locomotive and tender. The daily inspection reports serve to protect the mechanical offices in charge of the equipment, especially where engines are ordered out before proper repairs have been made. The purpose of the law is to do what the motto of this association states, namely, "To improve the locomotive engine service of American railroads." The safe operation of the railways depends upon two things—good locomotives and competent men to operate them.

ADVANTAGES OF MECHANICAL STOKING

The feeding of fuel into locomotive fireboxes by mechanical means has passed the experimental stage, and locomotives are operating at a mechanical efficiency of from 85 to 100 per cent, hauling trains and effecting operating economies that would not be possible under ordinary hand firing conditions. The application of appliances for firing solid fuels mechanically has made quite rapid strides since 1912, and there are now about 1,900 engines fired in this manner.

The average tractive effort of all locomotives in the United States has increased in the past ten years 38.6 per cent; the heavy locomotives of years ago ranging from 36,000 lb. to 42,000 lb. have given place to those ranging from 54,000 lb. to 160,000 lb., and the figures are increasing yearly. The average tons handled per freight train has increased 54.1 per cent in ten years. The gross ton-miles handled per locomotive has increased 11.3 per cent, which shows that we are not getting the full benefit of the increase in tractive effort.

The following figures covering the four railways using the largest number of locomotives with appliances for feeding fuel mechanically, and by which a large proportion of their freight traffic is handled, show interesting comparisons of average trainloads. (The figures are taken from reports made to the Interstate Commerce Commission.)

Fiscal Year Ending June 30, 1915, Compared with Fiscal Year Ending June 30, 1904

	Increased average tractive power (Per cent)	Increased average number of tons of freight per train load (Per cent)
Road A	43	78
Road B	40	72
Road C	30.7	72
Road D	29	54

(The locomotive fuel cost per ton-mile on each road shows a decrease for 1915 as compared with 1904.)

This study is not intended to show that the method of firing the fuel is entirely responsible for the results obtained, as many features, such as brick arches, superheaters, improved design, change in line, and increased activity on part of the transportation officers in more closely following the proper loading of locomotives, have all had a hearing on the matter, and it should be remembered that in all cases of application of appliances for mechanical firing the locomotives were also equipped with the brick arches and superheaters.

The results that are being obtained from mechanical firing of the fuel may be summed up about as follows:

Increased Tonnage.—It has been reported that on some roads the trainload has been increased from 8 to 15 per cent as compared with hand firing, with much the same conditions as to grade and time. Such increase, it will be understood, can only be expected with large power where the advisability of the use of the stoker is clearly indicated.

Increased Speed.—The experience of most roads is that better time is made with the same tonnage on the same grade than with the hand fired engine. The following is quoted from report made by one road:

"It is a daily occurrence on —— Division for trains hauled by stoker fired locomotives to overtake trains hauled by hand

fired locomotives, and to reduce speed on this account. If all the locomotives on the division were equipped with stoker, there would at once be a further increase in the speed at which trains are put over the road, and this would be more noticeable at periods when the traffic is heavy and line congested, and, therefore, when it is most desirable."

Saving in Labor of the Fireman.—With the type of appliance in most general use, the amount of coal placed in the firebox by the stoker is from 85 to 95 per cent of the total fuel fired. Some trouble has been experienced due to the back corners of the firebox not being filled properly, resulting in the necessity for some hand firing.

Elimination of Necessity for Second Fireman.—The manual labor of supplying fuel to the firebox has been so largely reduced by the use of the stoker that this question has been settled permanently.

Shaking Grates.—When the appliances and fire are properly handled, it has been the experience of some roads that grate shaking between terminals is not necessary. While in some localities the character of the coal is such that some shaking is required, with the thinner fire carried as compared with hand firing, less of it is indulged in. The thinner fire also results in saving time in cleaning fires.

Firemen Follow Engines More Regularly.—On account of the reduced physical labor connected with their duties, the firemen are inclined to follow their engines, resulting in reduction of extra lists, raising the standard of new men employed and providing opportunity for better training, so that the firemen will eventually become better engineers.

Reduced Number of Engine Failures.—Fewer failures are the rule, due principally to the ability to largely overcome defects, such as leaky superheater units, firebox sheets, flues, cylinder packing, valves, etc.

Length of Run Increased.—It has been found on some roads that locomotives could be operated successfully and continuously over two divisions, when this was found impossible under hand firing conditions.

Smoke Emissions.—With the engine using steam, it has been found that the density of the smoke on stoker engines can be kept uniform by careful manipulation. In some restricted smoke districts where more or less switching is necessary, it has been found that the smoke emission cannot be controlled as well as under hand fired conditions where run-of-mine or lump coal is used.

Fuel.—Grades of coal, such as nut pea and slack or screenings can be utilized successfully. As to the relative value of four grades of coal found on one road, the following table and analyses covering five round trips with each grade made under the same conditions will be of interest:

		Gas		Soft or low volatile	
		Nut-pea-slack	Slack	Run-mine	Screenings
Basis per horse power hour..	Lb. coal	3.88	4.23	4.32	5.17
	Relative lb. coal	100.00	109.00	111.19	132.98

Note: Nut-pea-slack—Coal passing through 1½-in. bar screen.
Slack—Coal passing through ¾-in. bar screen.

Attention is called to the fact that except when the haul is small, the use of low volatile screenings is prohibitive, due to their slower burning properties and resultant loss on account of being drawn through the flues and out of the stack when the locomotive is being worked to capacity.

Consumption of Fuel.—Burning either the same grades of fuel on both, or run-of-mine or lump on hand fired and screenings on mechanically fired locomotives, the consumption on a pounds unit basis is higher with the latter. It has been found, however, that locomotives can be operated with fine coal, such as it would not be possible to hand fire and allow the working of engine to be anywhere near the maximum.

Powdered Fuel on Locomotives.—The latest development for putting fuel into locomotive fireboxes, and which has been worked out to a practical basis within the past two years, is that of burning powdered fuel, a number of locomotives equipped for the purpose now being in operation and in the process of being equipped. As to the results that have been obtained in locomotive service, the following are the conclusions of the standing committee on Powdered Fuel of the International Railway Fuel Association, presented before the annual convention held at Chicago, Illinois, May 15, 1916:

"Summing up the results that are being obtained in locomotive service, these may be stated as:

"Smokeless, sparkless and cinderless operation.

"Maintenance of maximum boiler pressure with a uniform average variation of 3 lb. without popping.

"An increase of from 7½ to 15 per cent in boiler efficiency as compared with burning lump coal on grates.

"Saving of from 14 to 30 per cent in fuel of equivalent heat value fired.

"Enlarged exhaust nozzle area resulting in greater drawbar pull and smoother working of the locomotive.

"Elimination of ash pit delays, facilities and expense and reduction in time required for and ease in firing up.

"Maintenance of a relatively high degree of superheated steam.

"No accumulation of cinders, soot or ashes in superheater or boiler flues, smokebox or on superheater elements.

"No punishment of or overheating of firebox, new or old sheets, seams, rivets, patchbolts, stays or flue beads.

"Elimination of arduous manual labor for building, cleaning and dumping fires and for firing.

"Avoids expense and annoyance for providing various sizes and kinds of fuels.

"Eliminates the necessity of front end and ash-pan inspection and for special fuels, firing tools and appliances for building fires and for stoking and cleaning fires.

"Equal provision with engineer for fireman to observe signals and track, thus reducing liability of accident.

"Your committee is of the opinion that the effectiveness and utility of fuel in pulverized form has been demonstrated from the past year's development and that the progress in the use of this method of stoking and burning bituminous and anthracite coals and lignites for generating power, heat and light on railways, will be quite marked from now on."

Conclusions.—The capacity of the power unit is largely dependent upon that of the boiler. With the increase in size of the locomotive, in the case of many new types the boiler has had to be enlarged to the extent of overreaching the limitations of hand firing, clearly indicating the necessity of introducing the fuel into the firebox by mechanical means. In fact, locomotives have within late years been constructed, the building of which would probably not have been attempted had not the practicability of this means of handling the fuel been established. There is little doubt that many locomotives are in service the maximum capacity of which is not being obtained due to the limitations in connection with the ordinary methods of manual firing on grates.

The committee on this subject is: W. L. Robinson (B. & O.), chairman; E. Hartenstein (C. & A.); J. H. De Salis (N. Y. C.); M. J. McAndrew (M. C.) and E. A. Averill (Locomotive Feed Water Heater Company).

Discussion

J. H. De Salis, (N. Y. C.): On the Pennsylvania division of the New York Central there are 15 Mallet and one Consolidation locomotives equipped with stokers and superheaters. The engine crews follow the engines more closely; they are in assigned service, and take more interest in the locomotive. Many firemen prefer these engines to local passenger runs. The smoke conditions have been materially improved and the steam pressure can be maintained better than on the hand fired engines. The train tonnage has

been increased from 3,600 to 3,900 tons by the use of the stoker engines.

F. P. Roesch, (E. P. & S. W.): On the El Paso & South Western there is a long pull of 117 miles with one per cent grade and another one per cent grade of 38 miles. In hot weather it has been found necessary to reduce the tonnage on the hand fired engines, but the stoker engines are loaded to full capacity. While more coal is used by the stoker engines it costs only $2.10 per ton as compared with $4.65 paid for the coal used on the hand fired engines. It is now planned to put the stokers on some passenger engines which are called upon to handle 14 steel cars over the long one per cent haul.

W. W. Shelton, (C. & O.): Special men are assigned to take care of the stoker engines. The cost for maintenance, including labor and lubrication, is 50 to 60 cents per 100 miles. With wet coal occasioned by heavy rains steam failures are liable to result. More trouble is experienced with clinkers than on hand fired engines with slack coal.

A. W. Willsie, (C. B. & Q.): The stoker engines on the Burlington use screenings passing through 2 in. round hole screens. It has been found that coal prepared on a round screen will be distributed better by the stoker than when it is prepared through the shaker bars. The stoker engine must be handled with care and the fire watched to see that proper distribution is being obtained.

Other speakers stated that after the men had once fired a stoker engine they would handle a hand fired engine more intelligently. Mr. Robinson in closing the discussion stated that from a six months' observation of Mikado engines on the same division it was found that the coal consumption per ton-mile varied as follows: Hand fired—100 per cent; stoker fired (assigned service)—110.8 per cent, and stoker fired (pooled service)—114.8 per cent.

SMOKE ELIMINATION

More real progress in smoke abatement has been made in this country within the last five years than had been made in 50 years previous to this period. This great and permanent advancement was obtained through the executive heads of the railroads taking hold of the question. To some extent this was forced on them by legislative action, which in many cases was unreasonable. The smoke problem is a question of perfect combustion. The nearer we come to it the nearer we are to smokeless operation, but when the varying conditions under which a locomotive is operated are considered it is not an easy matter. At times it is necessary to burn as high as 150 lb. of coal per square foot of grate surface per hour, a condition that few combustion engineers ever consider in advocating smokeless operation. There are cases where the engine crews are not responsible for smoke violations. One of these is where the power is in poor condition, but the great majority of these cases were caused by carelessness of the engine crews.

There is no question but that seniority as conducted today, encourage this class of men and is an injustice to the man who takes a pride in educating himself and doing things the best he knows how. On the other hand, those of us who are old enough to have worked under conditions existing before seniority became general, still believe it to be a lesser evil than favoritism. One thing that could be done without affecting senior rights would be to make a record of the men at stated periods. This would be along the lines followed some years ago on many roads when each engineer received an individual performance sheet monthly, showing the number of miles made by his engine, the cost for fuel, oil and repairs, the engineers' and firemen's wages, wipers' wages, average cost per hundred tons per mile and all details pertaining to the operation and maintenance of their engine. It would in our opinion result in saving the present cost of supervision needed to keep smoke elimination within the limits required.

Perhaps the nearest approach to smoke elimination in the operation of locomotives will come with the use of powdered coal, now being experimented with on several railroads. The use of powdered coal will afford a more perfect combustion of the fuel than is otherwise possible, which will, of course, be a great advantage, but in spite of that fact there will ever be a need of the faithful and intelligent co-operation of the engine crews. This latter factor really represents the most difficult feature of the whole problem.

The report was signed by Martin Whelan, chairman.

Discussion

W. L. Robinson, (B. & O.): It is not necessary to discipline the men for bad smoke performance. Records should be kept of each offence and explanations called for. Let the men know frequently where they stand and if possible to get a good performance they should be transferred to other districts. Close supervision is necessary. In Washington, D. C., every smoke emission lasting more than 10 seconds for black smoke and 30 seconds for dark gray is recorded. No smoke prevention devices are used except the brick arch. The placing of the smoke consumers on an engine admits that it is impossible to have smokeless firing. The stoker engines give the greatest trouble.

W. H. Corbett, (M. C.): In case of a second violation the offender is given a suspended sentence of 5 days which is held over him for a year. At the end of that time if he has an otherwise clean record it is removed. The brick arch and the steam jet smoke consumer used in the vicinity of Chicago give excellent results.

C. W. Corning, (C. & N. W.): When firing up a cold engine, by placing the coal on the grates and covering it with kindling such as edgings from the mill and igniting it with waste saturated with coal oil a fire can be started with but very little smoke. The fire up man can also handle more engines in this way. The engines must be maintained in good condition for smokeless operation.

SUPERHEATER LOCOMOTIVES

[The question of the advantages of superheaters, brick arches and other modern appliances on large engines, especially those of the Mallet type, was continued over from last year, the report of the committee remaining substantially the same. This will be found in the issue of the *Railway Age Gazette* for September 17, 1915, on page 505, under the heading of Modern Appliances on Large Locomotives. The discussion this year centered on the subject of superheaters. —Editor.]

W. A. Buckbee (Locomotive Superheater Company): In some instances where superheaters have been applied to locomotives and no other change has been made in the design of the locomotives, it has been found that the tonnage can be increased about 10 per cent. The reason for this is the increase in boiler capacity, and the shorter cutoff at which the engine may be run. It is well known that the efficiency of the superheater increases as the engine is worked harder, which means that the steam supply is greater. In many cases the diameter of the cylinders has been increased with the application of superheaters, but where this is done the factor of adhesion must be carefully considered. In some cases it is advisable to increase the cylinder diameter and to decrease the boiler pressure, keeping the same tractive effort. This not only gives a fuel saving by the use of a superheater, but also increases the life of the boiler. It has been found that with the cylinders hot that the superheater engines will start a train that a saturated steam engine of the same tractive effort will not. The reason for this is that the steam will pass through the cylinders without being condensed. In the saturated engine the steam that is condensed in the cylinder evaporates back into steam as soon as the pressure has been reduced sufficiently, and this produces a large volume

of steam which must be forced out through the nozzle. With superheated steam this does not occur.

F. P. Roesch (E. P. & S. W.): In order to obtain the full benefit of superheated steam in locomotives the engines must be so maintained that the full amount of superheat will be obtained. In order to determine properly whether or not an engine is giving the proper degree of superheat a pyrometer is absolutely necessary. The difference between the correct temperature and an inefficient temperature is so hard to detect in the operation of a locomotive, especially where they are used in pool service, that no engineer can be expected to tell whether or not he is getting the proper degree of superheat without a pyrometer. We have found that the brick arch is absolutely necessary, and that steam should be admitted to the cylinders when not working steam in order to give them the proper lubrication. Forty degrees more superheat is obtained when the arch is used, and on starting there is a difference of 100 deg. in superheat.

Other members spoke on the efficiency obtained from the use of superheater locomotives. On one road 20 engines had been converted to superheaters with absolutely no other change in the engine, the slide valves and the Stephenson valve motion being retained. Where 3,600 tons were handled with the saturated engine at 200 lb. boiler pressure, from 3,900 to 4,000 tons were handled with the superheater engine at a boiler pressure of 185 lb. It was believed by some that due to the absence of condensation in the cylinder and also to the higher degree of temperature of the cylinder that the mean effective pressure of a superheater engine under the same conditions as a similar locomotive using saturated steam, was higher. It was generally reported that better time and more tonnage could be handled with the superheater engine at a lower fuel and water consumption. The question of oil to be used was brought up, but it was the general opinion that if the air was kept out of the cylinders, while the cylinders were at a high degree of heat, no trouble would be experienced with carburization.

HANDLING FREIGHT TRAINS

The purpose of this report is to recommend proper methods for making up and handling modern freight trains on both level and steep grades, so that the smallest amount of damage will be done to the draft gear. In general, it may be recommended that:

All passing tracks, stations, water tanks, and, in fact, any place where heavy trains have to stop, be located on such a grade that the train may be stopped without either severe pushing or pulling action on the draft gear.

All unnecessary stops be cut out.

The brake piston travel be kept uniform, brake pipe leakage be kept down to a reasonable amount, retainers and their piping be kept in absolutely good condition, good pumps be placed on the locomotives which will furnish the necessary air to handle the brakes.

The engineer be thoroughly instructed in the handling of the brake equipment.

Special attention be paid to the inspection of draft gear at terminals.

Records be kept of the individual performance of engineers on train handling, and that they be required to make a written statement as to the cause of the damage to the draft gear on the trains they handle.

Yard Switching.—Much of the damage to draft gear is done in switching. It has been found that when a bunch of cars was coupled up at a speed of 5 m. p. h., there was a buffing strain of 255,000 lb. In taking slack to cut off a dynamometer car, which was 21 cars from the engine, a shock of 78,000 lb. was experienced. It will be seen from this that too much care cannot be exercised in handling cars by all concerned.

The committee recommends that uniform instructions be given to cover local conditions, in the proper manner in which to handle the cars and trains in different yards, also that hand brakes be kept in good condition, so the yard men can stop the cars by them if necessary.

Make-Up of Trains.—The ideal arrangement of a train of empties and loads would be to so alternate them as to produce, as near as practicable, a uniform degree of retardation throughout the trains, but this would obviously be impracticable. Tests have shown that, where possible, place about one-third of the empties next to the engine and ahead of any loads, or else scatter the loads throughout the train and not allow them to be bunched in any one place.

From the tests it was found that the maximum strain reached under any conditions with a train made up as above was 92,000 lb., while the maximum strain with the loads all behind was 223,000 lb., or two and one-half times greater, and with the loads all ahead 150,000 lb., 60,000 lb. greater than we experienced where the loads were near the middle of the train.

Empty and Load Brake.—One of the most fruitful causes of damage to draft gear is the difference in braking power between empty and loaded cars. This is the reason why so much stress is laid upon the importance in mixing the loads and empties in such a manner that the unequal strains will be spread over the train so that it will not do damage.

Braking power on cars varies in different parts of the country from 60 per cent to 80 per cent of the light weight of the car, and drops to from 17 per cent to 30 per cent when the car is loaded. Now, then, if we could get a brake equipment which would give a uniform braking power with both empty and loaded cars, we will be in a position to handle long, heavy freight trains faster and with less damage to draft gear and with greater safety.

In the new empty and load brake, which has been introduced on several roads, we have to a great extent such a brake. On one road the cars have a standard braking power of 50 per cent of the light weight of the car, and when loaded and cut into load position they then have 40 per cent of the weight of the car, or a loss of only 10 per cent in braking power when the car is loaded as against a loss of 40 per cent to 43 per cent with the single capacity brake.

The reports concerning this brake indicate that it will increase the hauling capacity of a road handling heavy trains down steep grades and tend to increase the safety of the operation of trains.

The following is a summary of tests of the empty and load brake made with a dynamometer car on one road:

The greater safety, control capacity and economy possible by the use of the empty and load equipment is illustrated by the fact that when the same brake pipe reduction was made with a 90-car train having 30 empty and load brake equipments on the head end, and also with a 90-car train of single capacity brake equipment, both on a tangent of 1½ per cent grade and at a speed of about 21 m. p. h., the train with the empty and load equipment on the first 30 cars was stalled, whereas the speed of the other train was only reduced to about 8 m. p. h. The average brake pipe reductions required to control the 90-car train with the 30 empty and load brake cars on the head end was only half as great as with the 90-car train of all single capacity brakes. The single capacity brake train could not be re-charged as promptly or as uniformly as the other, because 100 per cent heavier brake pipe reductions had to be made.

The average speed on the grade was about 16½ m. p. h. for the train without empty and load brakes, and about 19 m. p. h. for the train having empty and load brakes (thirty on the head end). This shows that a higher speed and therefore greater capacity of road can be secured and at the same time a greater factor of safety in operation afforded by the use of the empty and load brake equipment.

Just preceding the final application at the foot of the

grade with the train having all single capacity brakes, the brake pipe pressure was only 78 lb. instead of 91 lb., as it was at the start. With the similar train having thirty empty and load equipments on the head end the brake pipe pressure preceding each successive application was maintained at 93 lb.

With both the 90 and 100-car trains having empty and load equipments there was an average reserve braking force available at all times during the descent of the grade such that at any time the forces being employed might have been increased by from 35 per cent to 55 per cent as occasion demanded. On the other hand, the train without empty and load equipment was being taxed to its capacity throughout the descent of the grade.

The best estimate possible from the data at hand shows that only about 48 per cent of the maximum available air supply was required in the handling of the train having empty and load equipment, whereas it was necessary to use about 54.5 per cent of the maximum compressor capacity for the train not having empty and load equipments.

Emergency stops from 23 m. p. h. on the grades with trains consisting of one locomotive, dynamometer car, six loaded coal cars and caboose (brake on locomotive and caboose cut out) were made in an average distance of 1,780 ft. when the cars were equipped with single capacity brakes. A similar train having cars equipped with empty and load brakes was stopped from the same speed in approximately 720 ft., 40 per cent of the distance required to stop with the single capacity brake.

[The report also included quite complete instructions for freight train handling, including instructions for engineers, train conductors and others who have to do with this work.—Editor.]

The committee is: L. R. Pyle, chairman, (Soo Line); E. F. Boyle, (Sunset Central); W. G. Wallace, (Am. Steel Frdies.;) Wm. Owens, (N. Y. Air Brake), and C. W. Irving, (N. & W.).

Discussion

Walter V. Turner (Westinghouse Air Brake Co.): Where the brake equipment is not properly maintained it is very difficult to give the engineer any definite instructions as to how his train should be handled. It must be remembered that the shocks are caused by the difference in velocity between the cars. This difference in velocity is caused, to a very large extent, by the unequal braking power on the different cars. A difference of one mile per hour in the velocity of two cars produces a shock between those cars equal to the weight of one of the vehicles, provided they are of the same weight. So it is very important that this braking power be maintained as nearly constant as possible, which means that the piston travel should be standard throughout the train. The best brake is the one that produces the least velocity between the cars, and which will apply them simultaneously; otherwise slow stops must be made if no shocks are to be obtained.

With the heavier cars of today in long trains the empty and load brake is found to be necessary. Cars of 315,000 lb. capacity are now being built. If the single capacity brakes were used on these cars it would require a 22-in. brake cylinder to properly brake a 100-car train, and this, of course, is impossible under existing conditions. With the empty and load brake the capacity of the brake is increased 3½ times, and 60 per cent as much air is used as in the 10-in. single capacity brake. The principal feature of the empty and load brake is that it can handle heavier cars at a greater speed, which means that it is just as necessary for heavy cars in long trains on level tangent as it is on the grades. It not only permits of better handling of the trains but would materially decrease the cost of maintenance of the cars, inasmuch as they would be handled more smoothly. The acceptance of the improvements in air brake design have not followed the acceptance of the development in the car and locomotive design, but it is necessary that they go hand in hand. It is just as important to control the speed of the new equipment as it is to build it.

T. F. Lyons (N. Y. C.): It pays to make haste slowly in braking the long, heavy trains of today. Terminal tests are very important and should be made. In making coal and water stops in cities where there are many crossings it is better to stop the train and draw it up to the water plug slowly, rather than to cut off from the train and run to the water plug light. By doing this the train will be ready to start right off after the engine has received coal and water, and will block the crossing for a much shorter time.

F. P. Roesch (E. P. & S. W.): The trouble with break-in-twos is due very often to defects in the draft arrangement caused by rough handling in the yards. It is estimated that fully 60 per cent of the damage to freight equipment originates in the yards, and defective equipment gets out unnoticed, especially at night, when it is difficult to properly inspect the cars. One break-in-two out on the road caused by this defective equipment will attract more attention and the engineer is often held to blame when it really is the fault of the men in the yards and the inspectors who let this defective equipment get out onto the road.

G. H. Wood (A. T. & S. F.): It is my opinion that fully 75 per cent of the damage to the equipment is done in the yards, and that every means should be taken to prevent any defective equipment from getting out onto the road. On the Santa Fe the terminal tests include stretching the trains to find where undue slack in the draft arrangement is.

W. G. Wallace (American Steel Foundries): Many of the break-in-twos occurring on the line of road are occasioned by improper attention being given to draft rigging at the terminals. It is important that the draft gears be maintained properly, and that excessive slack be eliminated. It might be well to stencil on the side of the car the proper length of draft gear travel in order that this may readily be determined.

L. R. Pyle (committee chairman): We should never ask an engineer to do anything unless the equipment is in condition to do it and that we could not do ourselves. Attention must be given to the handling of the cars in the yards. The number of break-in-twos can be diminished if a determined effort is made to do so. I know of one specific case where 100 break-in-twos per month were reduced to 26 by simply getting after them and following them up. The traveling engineer should make recommendations concerning the makeup of trains.

ASSIGNMENT OF POWER

Power Assignment.—The officer that assigns the power to the sub-divisions on the system should be a man who understands the construction of the different type engines and who also understands the requirements of the sub-divisions on which the power will have to work. This officer should have absolute authority and report direct to either the general manager or superintendent of transportation, or general superintendent of motive power, and should at all times keep in close touch with these general officers. He should have an organization with an assistant or assistants on each sub-division to co-operate with the local officers, and conduct tests with reference to tonnage and fuel economy.

Assigning of power with reference to density of traffic is very important; the less train miles made will be the most economical operation. The grade line and the shop facilities for caring for the engines should also be considered. The power should be run to or from some point

where they have necessary facilities for caring for it, except in isolated cases of engines working on runs and coming to the shop every one or two weeks, as the case might be.

The assigning of engines with regularly assigned engine crews versus the pooled system, is a very important question, which, to a large extent, is governed by local conditions. It is possible to run engines successfully and economically over more than one division in continued service. This will save terminal consumption of fuel and reduction in mechanical forces at intermediate points. At the end of the engine's run it should be thoroughly inspected and all necessary work done. With our modern passenger engines equipped with brick arches and superheaters it is possible to run them over two or three divisions from 200 to 350 miles. The advantages in assigning regular men on engines would apply where the power is old and facilities for caring for power are limited, such as branch service and all locals and on runs that tie up at outlying points.

A number of roads have shown that engines can be pooled successfully and economically, provided there is a proper organization to inspect and repair them.

The condition of power reflects—first, the class of work that the roundhouse foreman will accept from his mechanic; second, lack of personal inspection and failure to keep in close personal touch with the mechanical condition of this power by the local mechanical officers that is so necessary in planning future repairs and up-keep.

Engine Mileage.—Every effort should be made to increase the mileage of the power the result of which is increased earnings on the capital invested, decreased cost of engine handling and less overcrowding at terminals, which automatically increases the mechanical facilities without increasing the expenditure and reduces the terminal consumption of fuel. The larger earning power created guarantees quicker returns and permits quicker retirement of power. Railway companies are finding that by converting saturated engines to superheaters increased mileage can be successfully made.

A recent striking example of what can be accomplished by running power through and over two divisions has come under the observation of the writer on two freight divisions of 120 and 119 miles respectively, making a total of 239 miles. A number of 49,000-lb. tractive effort superheated consolidation engines have been used for several years for handling all freight business, much of which is expedite freight. The freight engines were run through from Springfield to St. Louis, crews changing at Newburg, and engines making mileage of 239 miles. A careful check for sixty days, including the months of May and June, showed the following results:

Engines run through made	133,000 engine miles
Engines not run through made	52,000 engine miles
Fuel used per 1,000 gross ton miles, through service	159 lb.
Fuel used per 1,000 gross ton miles, not run through	178 lb.
Saving in favor of engines that went through	$2,611
Equals a saving of 10.7 per cent.	
Reduced force at intermediate point, account going through	$1,260
Total for two months	$3,871
At same rate will show annual saving	$23,226

Also, five engines were removed from the division and used elsewhere, in face of increased business of 20 per cent in train miles per mile of road or 246 train miles per mile of road a year ago and 299 train miles per mile of road in 1916 on this territory.

The reason that all engines are not run through is due to grade, line and operating conditions, which require turnarounds be made.

The following passenger engine mileage is made between terminals before the engine is relieved, one, two and in some cases three crews manning the same engine:

Springfield to St. Louis	239 miles
Springfield to Memphis	282 miles
St. Louis to Monett	283 miles
Springfield to Oklahoma City	304 miles
Sapulpa to Sherman	207 miles
Springfield to Kansas City	204 miles
Springfield to Ft. Smith	178 miles
Kansas City to Oklahoma City	378 miles
Memphis to Birmingham	251 miles
Memphis to St. Louis	318 miles
Monett to Wichita	239 miles
Making an average run of	262 miles

From 6,000 to 10,500 miles per month are made with passenger engines. Taking, for instance, the run from Memphis to St. Louis, 318 miles, four runs are handled with five engines—one to protect. The accumulative mileage will require that one of these engines shall go through the shop every ninety days for general repairs, as every ninety days one of the five engines has made more than 114,000 miles.

Another feature in assigning power that should be given serious consideration is where a limited number of superheated engines are available, the conditions being equal, the superheated power should be assigned in territory and on divisions where company coal haul is longest and where company fuel costs the most, thereby decreasing the cost of company coal and increasing revenue train haul.

Some of the factors contributing to successful assignment of power are a thorough knowledge of condition and capacity of the power, of the business requirements and co-operation between the departments.

The committee is: P. O. Wood, chairman (St. L. & S. F.); J. D. Heyburn (St. L. & S. F.); D. Meadows (M. C.); F. R. Melcher (C. & N. W.), and W. H. Corbett (M. C.).

Discussion

W. L. Robinson (B. & O.): The effect of pooling engines may be shown perhaps, in a general way, by referring to the annual statistics published by the Interstate Commerce Commission. In 1904 a great many railroads followed the system of assigning regular engines to the crews, while in 1914 most of these railroads were using the pooled system. During that time the average tractive power for locomotives increased 38.6 per cent, while the ton-miles per freight locomotive only increased 11.3 per cent. This may be due to the fact that the engines do not give the service under the pooled system that they would where they were assigned. In the annual report of one large railroad, however, to the assignment of power is attributed largely the decrease in operating cost. With an increase of seven million dollars in business there was a decrease of $347,000 in operating cost and a decrease of $89,000 in fuel cost, which was attributed by the general manager of that road to the assignment of power. Regardless of this fact, however, it is apparent that the management of most roads prefer the pooled system. We should acknowledge this and make the best of it, and keep the engines up in the best possible condition, having the shops ready to make quick and adequate repairs.

C. W. Irving (N. & W.): On one division of the Norfolk & Western there are 10 Mallet engines in assigned service. These engines are always to be found ready for their trip and seldom get to the back shop for repairs more than once in 18 months. These engines make 3,000 miles per month in freight service, which is considered good for this class of engines.

E. F. Boyle (Sunset Central): No difficulty is found on the Sunset Central in operating the pooled system of handling engines, and it is believed with proper organization and proper maintenance it is not difficult to work this system to advantage. Every time an engine reaches a terminal it is given a thorough inspection and repairs are promptly made. A district of 1,190 miles is operated with three engines with no difficulty whatsoever. Oil engines are used on this road.

B. J. Feeny (I. C.): Four years ago there was a bad congestion on the Illinois Central, which was then operating under the pooled system. The general manager ordered that the engines be assigned to specific crews against the judgment of many of the road foremen on the road at that time. This was done and two weeks afterward the engine

delays were materially decreased. The fuel consumption was decreased and, as it proved later, the cost of maintenance was less.

Other speakers on the subject strongly recommended the assignment of power, and numerous interesting cases were mentioned wherein it had been found to be the most desirable thing to do. One case on the Baltimore & Ohio, where the power had been assigned, the failures were very small, varying between two and three a month, and the engines made 119 to 121 miles per day. Later when these engines were pooled the failures increased from three to 29, and only 29 to 103 miles per engine per day were made. It was also claimed that the firemen would learn to handle their engines better and thus make a better fuel performance than if they were given a different engine every day. Several instances were mentioned as to where better mileage and more ton-miles were hauled by engines under the assigned than under the pooled system, contrary to the idea that the pool system usually permits the engine to make better mileage.

OTHER BUSINESS.

W. H. Corbett, M. C., presented his report of attendance at the Master Mechanics' Association last June, and also read the paper he was requested to prepare for that association at its convention.

The committee on Constitution and By-Laws changed the articles requiring that all papers to be presented at the annual convention should be in the hands of the secretary ninety days before the convention. It was also voted that the executive committee confer with representatives of the Air Brake Association and the International Railway Fuel Association regarding their consolidation with the Traveling Engineers' Association.

During the closing exercises W. O. Thompson, secretary of this association since its inception and who was largely responsible for its organization, was presented with a past president's badge, being voted to an honorary past presidentship. In replying to this gift Mr. Thompson stated that since the association has been organized 900 members have served on committees, 181 subjects have been considered and that the average attendance the past 15 years has been 300. Professor Louis E. Endsley, of the University of Pittsburgh, was voted an honorary member of the association.

The following officers were elected for the ensuing year: President, B. J. Feeney, Ill. Cent.; first vice-president, H. F. Henson, N. & W.; second vice-president, W. L. Robinson, B. & O.; third vice-president, G. A. Kell, G. T.; fourth vice-president, W. E. Preston, Southern; fifth vice-president, L. R. Pyle, M. St. P. & S. S. M.; treasurer, David Meadows, M. C. The following new members were elected to the executive committee: J. Keller, L. V.; J. P. Hurley, Wabash; P. F. Roesch, E. P. & S. W.; E. Hartenstein, C. & A.

HEATING GERMAN PASSENGER TRAINS.—The administration of the German State Railways, it is reported, has given public notice that it will no longer be possible to supply sufficient steam heat in passenger trains, especially if they are long and it is very cold. The patrons have been requested, as the weather gets colder, to supply themselves with warm clothing for traveling.

ENGLISH EXPORTS OF RAILWAY MATERIALS.—According to the Board of Trade export tables, during the eight months ended August 31, 1916, 37,562 tons of rails of the value of $1,934,911 were exported, as compared with 198,133 tons, valuing $7,039,108, in the corresponding eight months of 1915; chairs and steel sleepers, 9,231 tons, of the value of $412,363, as against 45,283 tons, valuing $1,648,795; and locomotives to the value of $4,023,072, as compared with $8,702,377.

THE WORK OF THE ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS*

By George W. Lyndon

The work of our association during the past year has been based upon the recommendations which were made to the Master Car Builders' Wheel Committee during the year of 1914.

Since our organization in the year 1909, we have steadfastly maintained that the varied service in the 60,000 lb. capacity cars made it imperative that the weight of the wheel should either be increased to meet the maximum conditions of service, or that we should have two standards in this class. The variation in service arises from the variations in the light weight of the cars in the 60,000 lb. capacity class, and as the standard of operation is to brake the cars at 60 per cent of their light weight, it must follow that any class of cars in which there is 100 per cent variation in light weight, which is common in the 60,000 lb. capacity class, cannot with safety carry the same weight of wheel. This is what the manufacturers have been required to do. The standard wheel specified for the 60,000 lb. capacity car weighs 625 lb. and the light weight of the cars may vary from 20,000 lb. to 53,000 lb.

Our association has recommended that the weight of the wheel be increased to 675 lb., which would provide a standard wheel to meet the maximum conditions of service as to load and braking and in asking an increase in weight of the two standards 625 and 725 lb. M. C. B. wheels, we are not actuated by commercial considerations.

It is estimated that there are 2,500,000 chilled iron wheel renewals annually, and if the weight should be increased 50 lb. each, the additional metal to be purchased would approximate 62,500 tons, provided all the renewals required an increase. This is by no means the case, because many of the prominent railroads in the country, representing over a fourth of all the cars in use, are already introducing advanced standards and are using wheels much heavier than the present M. C. B. standards.

Our association has made a very satisfactory arrangement with the University of Illinois through Dean W. F. M. Goss, in which it is agreed "That the University Experiment Station will undertake an investigation concerning the stresses and behavior of chilled iron car wheels." In submitting a draft of this arrangement to the president of the University of Illinois, Dean Goss made the following statement:

The importance of securing proper design and proper methods of manufacture for chilled iron car wheels may be judged by the fact that there are now in operation in the country approximately 20,000,000 freight car wheels and the demand for renewals alone involves the manufacture of 2,500,000 chilled iron car wheels per year. With these facts in mind, the Association of Manufacturers of Chilled Iron Wheels has agreed to co-operate with the Engineering Experiment Station in a study of the questions fundamental to the design of such wheels.

PROJECTED BATUM-TREBIZOND RAILROAD.—The British consul at Batum reported recently that the Russian government has decided to build a railroad from Batum to Trebizond. The new railway, which is to be of the ordinary Russian 5 ft., is, as far as possible, to skirt the foot of the mountains and follow the coast. In spite of the difficulties that they have to encounter in building the line, the state engineers are confident that they will be able to finish the work in six months. It is not expected that the new line will be of much value for general commercial purposes for some years to come.

*Extract from President's address at the annual meeting of the association in New York, October 17, 1916.

Progress on the New Chicago Union Station

Negotiations Between Railroads Have Been Completed and Preliminary Construction Is Well Under Way

PLANS for the new Union Station in Chicago, which will be owned jointly by four of the railroads using the present station, are now assuming definite form. The city ordinance authorizing this work was passed about two years ago and the intervening time has been occupied in preparing plans, in negotiations between the railroads for the exchange of property, etc., and in preliminary construction work.

The land to be occupied by the new Union Station facilities consists of 1,528,000 sq. ft. of ground, or over 35 acres in the heart of Chicago's business district. Over 1,300,000 sq. ft. was in the hands of the railroads and has been occupied by their freight and passenger facilities for many years. In order to make the Union Station project feasible it was necessary, therefore, that the railroads provide themselves with new freight facilities in lieu of those surrendered. This brought about an exhaustive study and investigation to enable the roads to find a location which would be adequate for their present and future needs and to harmonize with the city's requirements and the development of the city from a practical aesthetic point of view.

The estimated cost of the project is in the neighborhood of $47,000,000 divided as follows:

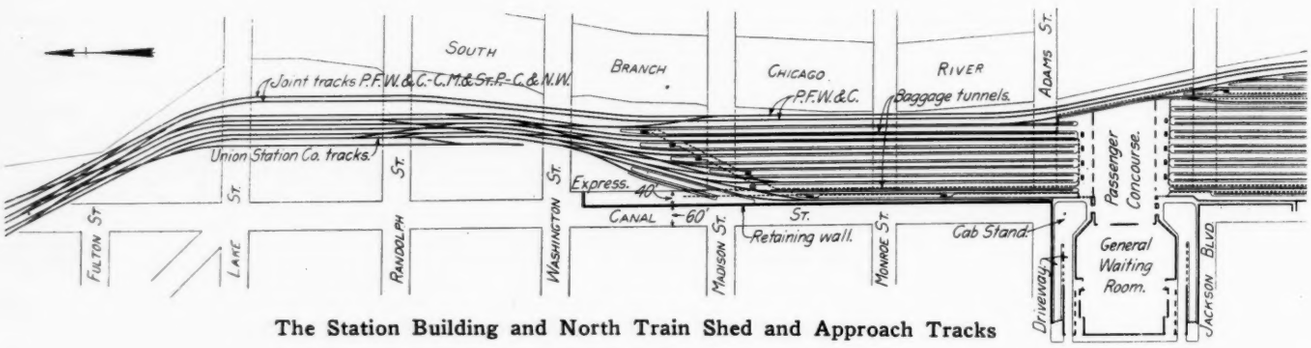
Land, about	$32,000,000
Property damages and improvements, required by the city as compensation (includes street changes, public utility changes, viaducts, etc.)	4,500,000
Station improvements, etc	10,500,000
	$47,000,000

The Present Facilities Inadequate

The existing station was built in 1880 and occupies a strip of ground about 134 ft. wide on the east side of Canal street, extending from Madison street to Van Buren street. The station building faces on Canal street between Adams and Monroe streets. It was owned by the Pittsburgh, Fort Wayne & Chicago (Pennsylvania Lines), and is used jointly by that company; the Chicago & Alton; the Chicago, Burlington & Quincy; the Pittsburgh, Cincinnati, Chicago & St. Louis (Pennsylvania Lines); and the Chicago, Milwaukee & St. Paul, the last four being tenants on long term leases. The Fort Wayne, the Alton and the Burlington enter from the south over a four-track line located on property formerly owned jointly by the Fort Wayne and the Alton, between Van Buren and Twenty-first streets. The Burlington operates over this line as a tenant as far south as Sixteenth street, where it connects with its own line. The Pan Handle and the St. Paul enter from the north on a two-track line between Madison street and a point on Canal street near Carroll avenue owned jointly by the Fort Wayne, the St. Paul and the Chicago & North Western.

The station is used for both through and suburban trains, approximately 170 through and 115 suburban trains entering and departing daily. Over 75 per cent of the suburban traffic is carried by the Burlington. The total number of passengers using the station daily under normal condition is 35,000. A large amount of baggage is handled, the quantity being relatively high in proportion to the number of passengers. Nearly half of the mail of the city of Chicago is handled through this station, amounting normally to 500 tons per day.

Having approaches from the north and the south, the layout of the tracks in the present station is that of the through type although it is a terminal for all the roads using it. However, the through tracks are all so short that the long trains frequently occupy portions of the tracks both north and south of the axis of the station and consequently the handling of the trains is much the same as in a through station.



The Station Building and North Train Shed and Approach Tracks

The elimination of the grade crossings between the city streets and the tracks was accomplished years ago by the depression of the tracks and the elevation of the streets. The south branch of the Chicago river lies a short distance east of the station and parallel to it, and the east and west streets are carried over the tracks on viaducts and across the river; all of these streets have inclined approaches commencing west of Canal street, with the result that the intersections of these streets with Canal street have been elevated materially, giving Canal street a somewhat undulating grade line.

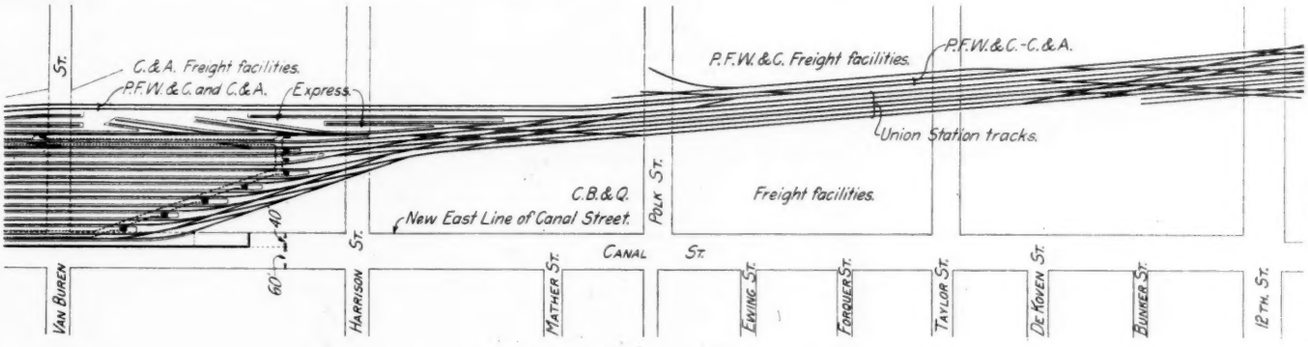
The old station has been overcrowded and congested for some years, but as it is located within a short distance of the center of the business district of the city, the adjacent property is used intensively, most of it for railroad freight terminals. It has been, therefore, impractical to acquire any additional space in which to expand the existing station either by adding more tracks or by lengthening the existing ones. Because of this the only solution is a new station occupying a materially larger area and involving, in the acquisition of additional property, a simultaneous re-arrangement of the adjacent railroad freight facilities.

Ordinance Requirements

The enabling ordinance for the new station was passed by the city council of Chicago on March 23, 1914, after many months of negotiations between the city and the railways. This ordinance had been under consideration for more

than a year, but many things conspired to obstruct and delay its passage. The ordinance was accepted by the Chicago Union Station Company, September 23, 1914. Among the obstacles was the insistence on the part of some of the organizations of citizens that the new station be placed on the site south of Twelfth street to conform to a scheme of the Chicago Plan Commission. Another serious objection was on the part of the Council's Terminal Committee, which committee would not approve the proposed location of the new Fort Wayne freight station upon land bought for the purpose between Jefferson and Desplaines streets, south of Van Buren street, provision for which was made a part of the plan submitted to the city for the new passenger terminal. This compelled the making of a new plan in which provision was made for a Fort Wayne freight terminal between Polk street and Twelfth street just west of the South Branch of the Chicago river. This plan was finally approved after arrangements had been made for compensation to the city for street vacations and other concessions.

Under the terms of this ordinance the Union Station Company is required to widen Canal street, now 80 ft. wide, so that it will be 100 ft. wide, from Twelfth street to Washington street, the extra width to be provided on the east side of the street. In part return for this, the station company is permitted to occupy under the street level for a width of 40 ft., on the east side between Washington street and a point 256 ft. north of Harrison street. It is also required to raise Canal street to give a generally uniform grade, approximately on a level with the roadways of the existing city bridges over the Chicago river, and thus eliminate the irregular grade line which this street has at present.



The South Train Shed and Approach Tracks

The approaches to the river bridges, 11 in all, between Lake street and Twelfth street inclusive, must be rebuilt to provide for the track rearrangement, and to accommodate a much greater width than is provided in the present structures. In addition, a bridge will be built over the river at Monroe street for which the Union Station Company must furnish the approach structure between the river and Canal street. A viaduct must also be provided on Canal street north of Lake street and on Kinzie street west of Orleans street, with a total length of 2,100 ft. including the approaches.

The grade requirements of the new station necessitate the removal of all the sewers entering the river from the west between Washington and Harrison streets. This will be made possible by the construction of an intercepting sewer in Canal street and around the site of the head house, with river connections at Harrison street and just south of Washington street. These changes in the sewer system are to be made at the expense of the Union Station Company and are now in progress, the first portion comprising an 11-ft. sewer from Monroe street to Washington street and thence east to the river, having recently been completed.

A new dock wall must be built along the river from Madison street to Van Buren street, upon which work will commence in a short time. In addition to the above requirements, the sum of $2,686,558.92 was paid to the city as compensation for the vacation of certain streets and alleys as required for the perfection of the plans for the new station as well as those for the facilities of the several railroads, whose freight terminals must be rearranged as a consequence of this project.

Following the passage of the Union Station ordinance in March, 1914, and its acceptance by the Union Station Company in September of the same year, the company undertook to complete all the negotiations for the land purchased; these negotiations had been held in abeyance pending a decision as to the advisability of accepting the ordinance in question.

The deals for the exchange of land between the railroads which are owners of the station company were completed very shortly, while the deal for the purchase of land from the Chicago & Alton was not completed until January, 1916, being a very involved arrangement, making it necessary to take over important property belonging to outside interests. Simultaneously with these negotiations others were in progress for the transfer of land owned privately and the securing of approval of all such transfers from the Illinois Public Utilities Commission. All of this had to be gone into in very great detail and was in progress with little interruption from 1907 to 1916.

The New Station

The new station will be constructed and operated by a new corporation, the Chicago Union Station Company, the stock of which is owned equally by the Pennsylvania company, the Burlington, the St. Paul and the Pan Handle. The Chicago & Alton will use the station as a tenant. Of the 35 acres to be occupied by the new terminal, 9 acres will comprise the right of way for the approach lines between Harrison street and Twelfth street on the south and between Washington street and a point on Canal street near Carroll avenue on the north and 26 acres will be used for the station proper as against 5 acres—the total area of the existing station.

The tracks of the station will be arranged to form what may be termed a double stub-end station, one group of tracks for trains using the north approach and the other group for trains using the south approach, the two groups terminating respectively on the north and south sides of a concourse between Jackson boulevard and Adams street.

The station head house will occupy a separate block bounded by Canal, Clinton and Adams streets and Jackson boulevard, with communication between the head house and the concourse by a subway under Canal street. It is the plan to depress the tracks and raise Canal street a sufficient amount to make this possible.

Most of the property acquired for the expansion of the station facilities was already owned by the railroads inter-

ested in the new terminal. Between the present station and the river the Fort Wayne has a freight station extending from Van Buren street to Madison street. The Chicago & Alton has an extensive development east of the main tracks between Van Buren street and Polk street, and the Chicago, Burlington & Quincy has a freight station extending for a considerable distance south of Harrison street between Canal street and the present station approach tracks.

It has been necessary for the Union Station Company to take over practically all of the ground occupied by the Fort Wayne freight station, except a narrow strip next to the river which will be retained by that road for a two-track running line, which will connect joint running tracks of the Fort Wayne and the Alton south of Van Buren street with running tracks north of Madison street, owned jointly by the Chicago, Milwaukee & St. Paul, the Chicago & North Western and the Fort Wayne. It was also necessary to obtain about 30 per cent of the holdings of the Chicago & Alton between Van Buren street and Polk street and also material portions of the property of the Burlington. The transfer of this railroad property to the Union Station Company necessitated an extensive rearrangement of the freight facilities of these roads.

Architect's Drawing of the New Station

In the case of the Chicago & Alton, this has been provided for by the acquisition of additional property further east, which will be turned over to the Alton in exchange for the property which that road will release. In the case of the Fort Wayne, it was necessary to obtain an entirely new site for the freight terminal. The property required north of Madison street and the block to be occupied by the station head house were acquired from private property owners. Much of this land was purchased by the Fort Wayne before negotiations were entered into with the city.

The Station Building

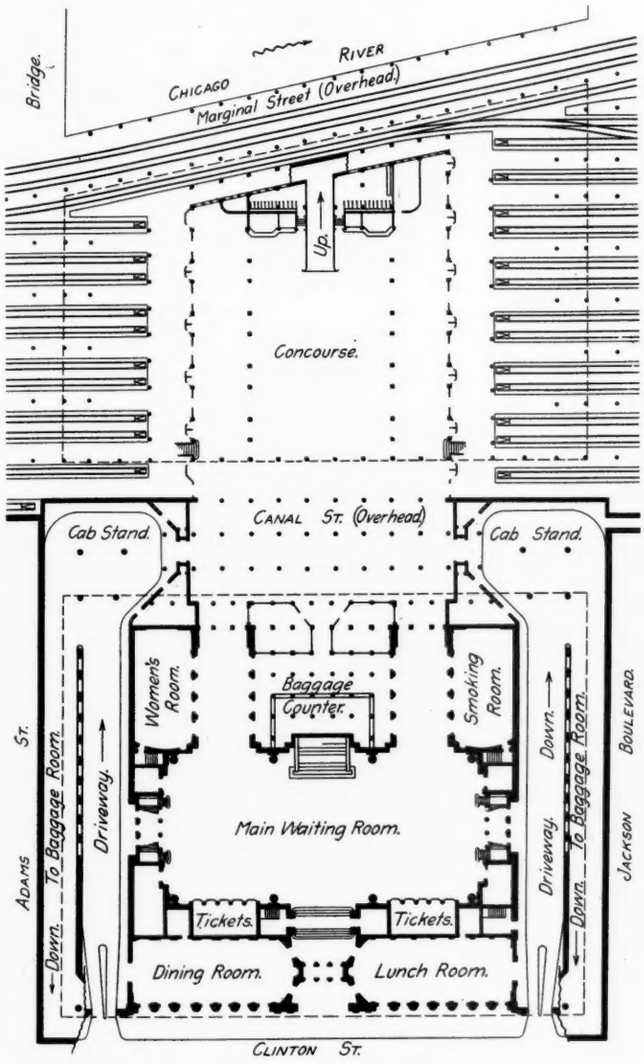
The head house of the station west of Canal street will be a monumental structure bounded on all four sides by a colonnade, 64 ft. in height and surmounted by a high attic. Above this, in the center of the building, will rise the clear-story of the lofty waiting room. The area east of Canal street between Jackson boulevard and Adams street will be covered to the north and south by the roofs of the train sheds, and in the center by the superstructure of the passenger concourse, which will rise to a considerable elevation above the street level and be surmounted by an arched roof. From the street, therefore, the new station will give the appearance of two independent buildings. On the interior this impression gives way to a sense of a simple unified plan.

The fundamental idea for the new station is a single level for all the important functions with which the passengers must deal directly. The concourse, main and auxiliary waiting rooms, ticket offices, baggage counters, restaurants and cab stands will be at the same elevation as the track platforms, about 18 ft. below Canal street. The lobby of the passenger concourse with the subway under Canal street will form a single room 180 ft. wide by 300 ft. long which will communicate through wide corridors with a main waiting room located in the center of the head house west of Canal street. This room will be more than 100 ft. wide and nearly 250 ft. long with a lofty vaulted ceiling illuminated by large clear-story windows.

Although located materially below the level of the streets, entrance to and exit from the station will be provided conveniently from all directions. From Adams street and Jackson boulevard, west of the river, ramps will lead directly to the concourse so that passengers, particularly those using the suburban trains, may enter and leave the station without going into the head house. The main entrance to the latter will be in the center of the Canal street side through a spacious entrance hall down a broad stairway, leading directly into the great waiting room. In order to accommodate the ever-increasing traffic arriving and departing from the station by automobiles and other vehicles, a very commodious arrangement has been planned for handling such traffic, as two cab stands are to be provided, one along Adams street and another along Jackson boulevard, both of which are to be located at the level of the concourse floor connecting with the street by means of drives opening out of the head house building on Clinton street. The pedestrian inclines will terminate at doors in the north and south ends of the waiting room.

The central waiting room will be surrounded by auxiliary facilities, including separate waiting rooms for men and women at the southeast and northeast corners respectively, and two ticket offices along the west wall in the most obvious location opposite the foot of the main stairway. Dining rooms and lunch rooms will also be located along the Clinton street side of the building.

In order to accommodate suburban passengers to the fullest extent in the concourse, thereby obviating the necessity for entering the station head house, additional toilet facilities, a suburban ticket office, news stands, etc., will be provided at the east end of the concourse. On the street level above these facilities will be located the immigrant waiting room,



Plan of the Station at the Waiting Room Level

having direct access to the track platforms independent of the passenger concourse.

The plan contemplates a baggage room in a basement about 36 ft. below the street level, covering practically the entire area below the waiting room and concourse. Access to this baggage room from the street will be obtained by a continuation of each of the ramps to the cab stands, these continuations having a reverse direction downward on a five per cent grade toward Clinton street with a team concourse under the Clinton street side of the building. The baggage room will communicate directly with elevators at the inner ends of the track platforms and by means of baggage subways with elevators located at the outer ends of the platforms. Other elevators will be provided to afford communication with the baggage counters in the concourse and near each of the cab stands.

The general plan contemplates two express buildings, one for the use of the express companies serving the Pennsylvania Lines, the Burlington and the Alton, the other for the express company serving the St. Paul. The former will be located east of the south group of tracks between Van Buren and Harrison streets. It will be a two-story building about 56 ft. wide served at the street level by a driveway 40 ft. wide, extending from Harrison street to Van Buren street. At the track level several tracks will be provided for standing express cars. The other express building will be located on Canal street south from Washington street with a general arrangement similar to the south express building.

Tracks, Platforms and Subways

There will be six approach tracks leading to the station at the north and south ends. Cross-overs at the north and south limits will provide for connections to the main line tracks of the roads entering the station, and the cross-overs at the entrance to station tracks will provide for parallel movements of trains to and from the approach tracks. There will be also two through tracks along the east side of the terminal, extending the entire length, for the handling of interchange freight.

The station tracks will be in pairs, 13 ft. center to center and high platforms between with a 27-ft. spacing of tracks, exceptions being made for the mail tracks. In the south yard there will be 13 passenger tracks having a combined capacity length of 13,065 ft., the maximum capacity length being 1,395 ft., and the minimum 545 ft., two mail tracks, provided with cross-overs so that a few cars can be switched without disturbing the entire track and 8 stub-end tracks having a capacity of from 2 to 12-cars each for the express companies. In the north yard there will be 9 passenger tracks having a combined capacity of 10,070 ft., the maximum capacity length being 1,405 ft. and the minimum 815 ft., two mail tracks with a capacity length of 1,450 ft., and 2 express tracks with a capacity of 11 cars.

It is proposed to use a concrete track construction for the station tracks, the rails resting on tie plates and felt pads, fastened to 7-in. by 9-in. by 2-ft. 6-in. creosoted blocks by screw spikes. The blocks will be imbedded in concrete, and will rest on a reinforced concrete base, with provision for drainage in the center of the track. The ladder and approach tracks will be of ballasted construction. All turnouts and slips with the exception of a few specials are to have standard No. 8 frogs.

The platforms are to be of reinforced concrete slab construction with the edge of the platform 5 ft. 4½ in. from the center line of track and the surface 4 ft. above top of rail. Working space is to be provided under the platforms for the necessary station facilities.

Provision is made for the handling of all incoming mail on trains by means of belt conveyors to a general sorting room in the basement, where mail is also to be delivered from the street by means of a spiral chute, and by conveyors from the proposed new postoffice. Outgoing mail to trains will be handled by trucks, taking the subways and elevators at outer ends of the platforms. Mail for the street will be delivered from a sorting room in the basement by means of an inclined conveyor to a platform on the street level and to the proposed postoffice by means of a conveyor. Provision will also be made for handling the mail to and from the street by elevators.

The design and construction of the Union Station project is under the direction of Thomas Rodd, chief engineer, Union Station Company, Pittsburgh, Pa., and J. D'Esposito, assistant chief engineer, in direct charge at Chicago. Graham, Burnham & Company are the architects for the station building.

Comments on the "Protest to Executives"

A Variegated Picture; Warm Confirmation, Incredulous Questioning; Defense of the Conciliatory Manager

THE following sixteen letters are comments on the one printed October 20, entitled "A Protest to American Railroad Executives." They are abridged severely. They are samples of a considerable number received—a number far too large to be printed in the space available. The present aim is to give typical statements of opinion. One correspondent refers to the author of the protest as an "alleged superintendent"; but he is a real one, on a prominent road. The only deceptive thing about his letter is the date line—Chicago. His home is a considerable distance further west than Chicago. The anonymity of all of the correspondents is explained by the delicate nature of the subject. The signatures, appended by the editor, indicate, in each case, the title of the writer and the section of the country which he represents. All of the writers are in active service, though "Ex" appears in some of the titles.

ILLUSTRATIVE EXPERIENCES

I read the article September 15 on "The High Cost of Expediency" and I fully sympathize with it. If there is one thing that I have been sick to death of hearing during the past 20 years it is the words from those in control "this is not the time to fight out this question—just wait." But I think the superintendent in question goes too far in his criticisms of the seniority rule and its administration. Some superintendents think the manager must *always* sustain them. This is manifestly unfair.

These cases are exactly parallel with law suits in the courts; if a litigant defeated in a lower court knew that there would be no use of appealing to a higher court because the decision would always be confirmed, the higher courts might as well be abolished. If railroad companies, voluntarily or for any other reason, enter into labor contracts, the provisions of which give the men the right of appeal up to a certain executive officer; and then if the superior invariably sustains the ruling of the superintendent, those provisions in the labor contracts might as well be abolished.

The best superintendents are usually those who have risen from the ranks of brakemen, conductors, engineers, etc., but I have had experience with two who had risen from such positions and who were men of ability, but who unconsciously or otherwise carried with them grudges against other men in train service with whom they had had personal quarrels, and they were unjust to those men. This, however, is not common. Our general manager has had but few appeals in the last three years; I have had none.

On the other hand I have known of a good many cases where weak executive officers, thinking to curry favor with the rank and file, have overruled fair decisions of subordinates. The seniority rule is a fair rule *if properly administered.* Years ago when I was an operator, I knew a fireman who was firing a passenger train; in due course of time he was promoted to engineer, and on his first trip he was assigned to haul the same passenger train upon which he had been firing the day before. This seemed very strange to me, when there were other engineers who had been hauling freight trains for ten or twelve years, and I asked him how he came to get this choice run; and with a wink he replied, "Oh, I stand in with the old man." It struck me then as very unjust and I have thought so ever since.

The trouble with the seniority rule is that the proviso "provided he is competent" seems to be lost sight of. Managers seem to be afraid to deal with that phase of the subject. I recall the case of an engineman whose deficiencies were not easily defined, yet he could not make time, where other runners were successful. We took him off that run and put on the next senior man. The man displaced was very indignant; and being a member of the grievance committee and the committee having an appointment with me on other matters, he brought up his own case, claiming that his seniority rights had been taken from him. I (then general manager) explained the facts and stated that he was "incompetent" and the committee unanimously, with the exception of himself, sustained my view of the matter; and the man had to take spare work for some months. Later on he bid in a new fast run and made good on it; evidently as a result of his previous experience. I could relate similar cases of recent date.

In regard to that sentence in the Superintendent's letter which reads "General officers and executives must face the situation as it is," I think the recent determination of the executives to stand a strike rather than yield to the eight-hour day movement, shows that whatever weakness there may have been in the past in this respect certainly does not exist now, in matters where a real crisis is concerned.

PRESIDENT (Eastern).

PLACE RESPONSIBILITY NEARER THE TOP

Although I recognize that there is much merit in some of the criticisms which are made (September 15 and October 20), I get the impression that there is something the matter with the writers themselves. Where you find conditions such as are described in the two letters referred to, there is evidently something radically wrong with the management. In former years a prominent Eastern road permitted many of the practices such as the two correspondents describe. It was the result of what has been termed "paternal management." Organized labor was used as a part of the machinery to accomplish political ends. Labor leaders were quick to take advantage of the situation. . . .

. . . Taking four or five of the larger roads with which I am familiar, I should say that the conditions such as are described do not generally prevail on such roads; or if they do prevail then it is largely because of the weakness of the division officers. Many managers still find difficulty in impressing on the division authorities that theirs is the responsibility. As a division officer I have never consciously been influenced as to how my superiors might regard my action, nor have I been influenced by what the "grievers" might think, say or do. As a general officer I have been more concerned with the lax manner of handling discipline cases by division officers than by any improper request or demand of labor committees in behalf of their members. The "Superintendent" is right when he says, "The majority of these men will stand for a square deal when they are given the opportunity, and made to see that it pays." Indeed, the men may be treated so fairly as to largely nullify the power of labor leaders, except possibly in matters affecting compensation.

There are many vicious rules in all schedules which never should have been acceded to; but if there had been, 20 years ago, fewer so-called "big men," whose word was law, there would be fewer vicious rules today.

If superintendents will handle discipline cases with a view of saving instead of getting rid of men; and, if, in placing responsibility for things that go wrong, they will

place the responsibility by starting at the top and working down, instead of at the bottom and working up, many of the troubles that now seem to confront "Old Trainmaster" and "A Superintendent" in dealing with discipline will, I feel sure, disappear, and the influence of labor leaders will be very, very seriously impaired.

PRESIDENT (Eastern).

NOT OVERDRAWN

I think the picture is not overdrawn. The condition described prevails to a far greater extent than one would like to think. . . .

PRESIDENT (Eastern).

EASTERN ROADS IN GOOD CONDITION

I think the Superintendent has considerably overdrawn the situation so far as the railways of the country generally are concerned. It may be that those conditions do actually exist on the line with which he is connected, but they do not, I know, obtain on our line. Men are promoted on their seniority only if they are competent to fill the higher positions and have passed the necessary qualifying examinations, which with us are quite strict.

We do not give division superintendents final authority in dealing with questions of seniority and discipline, but I am satisfied that our practice in this matter has not destroyed or relaxed discipline or demoralized our service; nor have such undesirable results been observed on other roads in our territory. PRESIDENT (Eastern).

Not only is the letter overdrawn; I think the subject is misrepresented. The conditions referred to do not prevail on this road and such knowledge as I have of other lines does not justify me in believing that there is any material basis for such conclusions.

VICE-PRESIDENT (Eastern).

A BIG PUBLIC QUESTION

. . . When a few men, representing only a small percentage of the employees, can stampede the President and Congress within a week, it is foolish to talk about the minute details of organization and discipline just now. It will come some day, but it will come with a bayonet. . . . We have passed the era when the local officer is a big man; in fact, we have almost passed the era when the railroad itself, or a combination of railroads, has any material power of initiative or private control. We are drifting as a mass until public interests, as reflected in the public pocket-book, awaken to the situation and put a stop to it.

VICE-PRESIDENT (Eastern).

THE "BIG FOUR"

. . . The story is not overdrawn in so far as it describes roads where the extreme situation exists. The methods adopted by the "Big Four" in dealing with Congress, at Washington last month, and the success of those methods, seem to prove the writer's contention. I would say that the story is a little overdrawn in describing *average* conditions; but there are roads on which the situation is just about as he puts it.

GENERAL SUPERINTENDENT (Eastern).

UP TO THE DIVISION HEAD

I think that this condition does exist but I have never had any such experience. If the division superintendent cannot handle the discipline on his division in such a way as to avoid being overruled, the only answer is to change the superintendent. This man writes as though he had a personal grievance; but he has opened up a big question which can be viewed from many different angles. . . .

GENERAL MANAGER (Eastern).

TIMES HAVE CHANGED

. . . The writer of the article may be located so far from his superiors as to not come in contact with them or in frequent conference, as on the long western divisions may happen to be the case. I have known conditions to exist in some cases, as cited, where the local officers were not taken into conference, but I think they are only isolated cases. Times have changed and to a certain extent the local officer is not the "big man" that he was, generally speaking; but I do not think this is any reflection on the general superintendent or general manager. . . .

EX-GENERAL MANAGER (Eastern).

A TRUE PICTURE

If the writer of that article had been trying to represent the majority he couldn't have done it better. It is the best pen picture I ever read of facts as they do exist.

TRAIN MASTER (Eastern).

CONSIDERATION FOR LONG-TIME GOOD RECORDS

Some of the matters mentioned are undoubtedly true, others not quite as bad as presented in the article. It is true, generally speaking, that all that a fireman or a brakeman has to do to be promoted to the position of engineer or conductor is to hold on until his seniority places him there. We require on our road that these men shall pass the prescribed examinations and they must pass them in a creditable manner. We have had several cases where the men were not permitted to take promotion because their examinations did not develop a satisfactory condition. At the same time it must be conceded that generally speaking this charge is true.

We have found in some cases that local officers took a decided stand on a matter which seemed to be of minor importance, and we reversed the decision; but even in these cases we have endeavored to protect the local officers by requesting the committee to take the question back to the superintendent in order that he might have the opportunity of reversing himself.

The question of grievance committees forcing reinstatement is a large one, in which is involved the general methods of discipline. This company does not believe generally in dismissal as a corrective discipline, excepting in extreme cases. Therefore, we do not have very many cases of forcing reinstatement of dismissed men. An employee who has been dismissed after giving many years, and the best years, of his life to the service of the company, naturally believes that he should be given a chance. . . . We have in our service today employees who have been concerned in serious accidents, including collisions. When discipline was about to be applied their general services were taken into consideration and if it was believed that this employee should be able to render better service than some new man who might be employed in his place he was given the benefit of that feeling. Of course, such men had to have good records and had to have good service performances behind them. They were not men who violated rule G, or who had made themselves undesirable men. . . .

GENERAL SUPERINTENDENT (South).

SUPERINTENDENT ENDORSED

I think the article is not too strongly drawn, and I endorse every point in it.

EX-GENERAL MANAGER (Western).

A GENERAL PRACTICE

That letter is one of the best things I've read in many a day; and not one whit overdrawn. It has been asked, How extensively does this condition prevail? Why, my dear sir, it is the rule rather than the exception.

I think that in some respects "Superintendent" does not go far enough in giving his reasons why. He might have

added that some of the officers who are big factors in the situation are themselves members of labor organizations. . . . He does well to utter a caution to "be careful in selecting men from brotherhoods for official positions."

"The idea that men can be handled as so many pins in a board is too absurd to admit of argument," and yet men do sit in general offices and attempt to play on the details of complicated affairs much in the same way, and with the idea of getting the same results, as an artist "touching" the keys of a piano. . . .

SUPERINTENDENT (Western).

OVERDRAWN

My own experience, as well as my acquaintance with superintendents in various parts of the country, leads me to the conclusion that while "A Superintendent" undoubtedly writes out of a full heart and under the sting of the conditions which he describes, these conditions are exceptional and not at all typical of the general situation.

It is undoubtedly true that there are general officers who are afraid of the organizations and others who, from natural laziness, follow the lines of least resistance, but I am positive that these men are few and far between.

SUPERINTENDENT (Western).

A PAINFUL LACK OF FIRMNESS

The situation referred to by "A Superintendent" does not exist on every railroad throughout the country but, unfortunately it does exist on a great many railroads, and with respect to such roads the condition is pretty much as described by the writer, and in the Peoria article signed by "An Ex-Trainmaster," printed in the September 15 issue, both of which I have read with interest.

There has been a painful lack of firmness in dealing with many of these situations, and this lack or want has gradually, yet surely, resulted in the serious situation which confronted the railways of the country in the latter part of August.

In saying this, I do not wish to imply that the subordinate officer is always right and the superior officer, who overrules him, always wrong. Quite frequently the subordinate is wrong; and this position is more in evidence with men promoted from ranks of the four organizations than with officers promoted from other branches of the service; but the failure or lack of support accorded the subordinate officer when his action is proper and the practice of continually giving way to the demands of the various committees is unquestionably largely responsible for "The High Cost of Expediency."

PRESIDENT (South Western).

A DEFENSE OF THE CONCILIATORY EXECUTIVES

Your correspondent of October 20, appealing to railway managers, states the truth; but it is a wholesome truth. This situation exists on most of the railroads of the United States, and is for the most part a righteous one. It must be taken into consideration that if the railroad managers did not compromise they would in many cases have a strike on their hands; for when the general grievance committee has gone as far as it can, then a vice-president of the order is brought in to handle the matter. If he cannot move the general manager a strike vote is taken. If the general manager does not settle at the first meeting he, according to the agreement with brotherhood, must use a lot of his time in entertaining committees. Then, after the strike vote is taken, it means several imperative meetings. Also, before the strike vote is taken, the vice president of the order, who is experienced in such matters, arranges to have newspaper publicity given to the fact that a strike vote is being taken. There has been so much said against the railroads that general managers are fearful of publicity, because it is always adverse to the management. The men have their say, through the newspapers, but the reporter seldom goes to the executive officer for his side of the controversy. Then, again, a general officer has not time for a newspaper discussion of the merits of the case. A general manager has a great deal to do besides entertaining committees; but the brotherhood men, who make a special study of these matters, have days in which to study a case where a general manager only has hours. The brotherhood knows by previous experience that the railroad executive can be so bothered and harassed that he will not stand for a long drawn out controversy; so the wise general manager settles the case at the first meeting. "A Superintendent," if he were in the general manager's place, no matter how great his moral strength, would, considering the present attitude against the railroads, choose the expedient way.

Maybe, after all, the discrimination is not in favor of the brotherhoods. Probably the brotherhoods are right, and that the unorganized men are being discriminated against. In this day of co-operation severe discipline is not always necessary. Unwarranted discipline is one cause of unionism, and now the head officers of the brotherhoods, using the big stick, finding that might makes right and becoming intoxicated with power do, in some cases, put through unworthy cases. They know that the general managers cannot afford to stand out against them. Furthermore, the heads of the brotherhoods today are as smart and keen as general managers. And they seldom push absolutely unworthy cases; they are more likely to ask for clemency.

"A Superintendent" will have to join with those who seek expediency and do the compromising himself, instead of letting it go beyond him to his general manager, there to be compromised. He has it within his power to be the good fellow and to save the general manager the botheration of meeting committees. In any large organization he has to deal with good, bad and indifferent men. All men are not the same, but they all have to be taken care of, and there is a broader view coming over railroad officers. While we are making money for the railroads we also have to do something towards making men. We are in the reformation business in spite of ourselves. The time to catch the man who cannot spell and is grossly illiterate is before he gets into the service; disapprove his application. He should be in some business not requiring education.

Mr. Superintendent can rest assured that seniority has come to stay. Men have got to be handled a good deal like so many pegs in a board. There is not any more difference in men in railroad work than there is in soldiers, yet the common soldiers all get the same wages. There is a growing tendency all over the country towards the leveling of wages of men in the same class of service. A helpless and inefficient man may be working alongside of a very efficient man and still have a larger family and more expense than the efficient man. The railroads have got to do their share in taking care of the man who is inefficient but not so inefficient that he could be discharged for inefficiency. Maybe if "A Superintendent" will examine himself he will find the measures he would like to take are too harsh and that the milder attitude of the general manager after all is the best. Probably it is better to keep the inefficient man and try to educate him towards efficiency rather than discharge him and, in all likelihood, get in his place a man just as inefficient and without a knowledge of the railroad. It is "A Superintendent" who is behind the times and it is for him to catch up, rather than the general manager. He should observe the handwriting on the wall and be governed accordingly. It is being learned that you can accomplish more by being gentle and kind than by being severe and hateful. The way for officers and men to go along is to get together and co-operate rather than work against each other. Your correspondent takes too pessimistic a view of the situation.

A general manager who does not have the local officer present at all sessions with the grievance committee, I should say was not competent to be a general manager. My plan,

and I do not see why "A Superintendent" could not so handle, before taking severe action, is to talk the case over with the general manager. There are not so many cases of discipline on a division nor such a need of haste that the case cannot be talked over with the general manager. It will take much less of his time and your time to talk over a case of discipline than to have to entertain committee after committee if the brotherhood chooses to fight it.

I believe superintendents are just as big men today as ever they were. From an ethical and humanitarian standpoint they are bigger, for the old-time superintendent was a tyrant. There is nothing in wholesale discharges as was the custom in the old days, and I should say that "A Superintendent" has put the case too strong in criticising our superiors. If he were a general officer and expected to make a success as such, he would have to act just as our general officers are acting.

Acting on his theory, why does not "A Superintendent" claim that our roads are less efficiently operated today than they were in the old days? According to the general tenor of his grievance he would have you believe they are less efficiently operated; whereas, when we come right down to the facts, they are more efficiently operated than they ever were before. There is more sobriety and less necessity for discipline. If a man is disciplined and a committee is asked to take up his case his mistake is just as deeply engraved on his mind as if he had been discharged; and the fact that, to hold his position, he had to be fought for by his brother members raises him up morally, in all probability, a good deal higher than if he had been discharged without any power to get back; so that from a psychological standpoint a man who has one grievance takes care not to have another; for whenever he has a grievance he is not only getting in bad with the railroad officers, but he is disgracing himself with his fellow lodge members; he doesn't want to be a chronic griever. We are moving ahead in this railroad game and not backwards as "A Superintendent" would have us think. The local officer is just as important as ever, only there are so many more of them than there were twenty years ago. Big business all around us has made big men more common than they were years ago.

The railroad superintendent should not be antagonistic towards the brotherhoods. If the best man on the division is a brotherhood officer, he is the one who should be selected for an official position. In most cases he makes a first class officer because he knows how to handle men, which is the most important thing an officer has before him. If the gentleman has had too many cases go to the general manager and be reversed it is time for him to correct his attitude. One is excusable for getting burnt once, but when he gets burnt the same way twice it is not a sign of wisdom on his part. The large results accomplished and the excellence of the operation of our railroads disprove the arguments advanced. We are surely moving forward. It is generally conceded there is nothing more magnificent in the world than the operation of the railroads of North America. Taken as a whole there is no finer type of men than the rank and file of operating department employees. Every way you look at the proposition there is an improvement over what existed twenty years ago. SUPERINTENDENT (Western).

FRENCH CONTROL OF SPANISH RAILWAY.—When the president of the Southern Railways of Spain died last year the British Government purchased his interest in the railways in order to keep the line, which serves important British mining interests, from falling into German hands. By agreement with the French Government, the shares so purchased have been transferred to the Andalusian Railway Company, a French concern, which has long wanted to get control of the Southern Railway, which must not be confused with the Great Southern of Spain Railway, in order to secured a monopoly of the southwestern corner of Spain.—*The Engineer.*

WASHINGTON CORRESPONDENCE

WASHINGTON, D. C., October 29.

I. C. C. INVESTIGATING CAR SHORTAGE

The Interstate Commerce Commission has instituted an active investigation of the causes of and possible remedies for the present acute car shortage, the extent of which is indicated by the report of the American Railway Association Committee on Relations between Railroads showing a net shortage as of September 30 of 61,000 cars, the largest net shortage on that date in 10 years. As reported in last week's issue of the *Railway Age Gazette,* the commission has assigned some of its boiler and safety appliance inspectors to investigate complaints of car shortage made by shippers in various parts of the country, and on October 28 the commission announced that Commissioner McChord will hold an informal conference on car shortage conditions at Louisville, Ky., on Friday and Saturday of this week, November 3 and 4. It was announced that this conference had been called in response to urgent requests of shippers, and that representatives of all the southern carriers, including those reaching the Gulf, and all eastern carriers, including those reaching the seaboard, will attend, as well as representatives of some of the western roads and of state commissions. This indicates that the effect of the enormous volume of export traffic on the car supply will be a particular subject of inquiry. The announcement says that shippers charge the railroads with receiving cars for export without assurance of water shipping facilities and permit their use for storage, and that the originating lines claim that their cars are not promptly returned to them.

The railroad representatives are to be asked to discuss car distribution, delays in movement and unloading, return of foreign cars to owning carriers, penalties for misuse of equipment, measures for securing relief, and generally all conditions affecting the subject. In addition, the roads have been requested to make answer to the following list of questions:

1. How many of your cars were off your lines on November 1, 1916? (Give character of equipment.)
2. How many foreign cars were on you line at said date? (Give character of equipment.)
3. What effort have you made to have your cars returned to your lines and what responses have you had to demands therefor?
4. What restriction, if any, do you apply to use of your equipment? If you have any restrictions state nature of same and reasons therefor.
5. Do you favor any particular traffic in distribution of cars, and if so what traffic and what are the reasons for so favoring it?
6. Is there any particular traffic that you have felt warranted in giving less than its ratable proportion of available cars, and if so name the commodity or commodities and give reasons for your action with reference thereto?
7. Have you any reason to believe that employees are discriminating between shippers in distribution of cars?
8. Is the present traffic in your territory abnormal for this season of the year, and if so to what extent?
9. How much additional equipment would be required to take care of all the traffic now being offered?
10. What percentage of your equipment is out of service by reason of not meeting with interchange requirements?
11. What proportion of your equipment has been repaired within past six months so as to make it fit for the service for which it is intended?
12. How many cars have been scrapped or retired during past 12 months? (Give class and description.)
13. How many cars have been placed in service during past 12 months? (Give class and description.)
14. How many new cars have been ordered in past 12 months and when do you expect delivery? (Give class and description.)
15. To what do you attribute the present acute car shortage?
16. Have you any suggestions as to how this condition may be now relieved or prevented from recurring?
17. Are shippers co-operating with you in endeavor to relieve situation?

The commission has also indicated its intention of keeping more closely informed regarding the conditions relating to the question of car supply by issuing orders requiring the carriers to file semi-monthly reports of freight car requirements and supply and quarterly reports of the condition of freight cars.

Beginning as of October 15 railroads whose operating revenues exceed $1,000,000 a year are ordered to compile and file in the commission's division of statistics a semi-monthly report showing: number of carloads of freight awaiting cars;

number of empty cars available for loading; number of empty cars moving in trains; number of loaded cars awaiting unloading; available car supply applicable to freight awaiting cars; total number of cars owned (or leased) by respondent; number of respondent's cars on respondent's road; number of other carriers' cars on respondent's road; total number of railway-owned cars on respondent's road; and number of private cars on respondent's road. These reports are to be compiled on forms prescribed by the commission as of 7:00 a. m. of the first and fifteenth days of each month and to be filed within 10 days thereafter.

Beginning as of January 1, 1917, the same roads are ordered to file quarterly reports showing the number of respondent's cars on respondent's road; other carriers' cars on respondent's road; total railway-owned cars on respondent's road; private cars on respondent's road; total cars owned (or leased) by respondent; units installed in service during last quarter; units withdrawn from service during last quarter; net increase or decrease in units in service; also the number and percentage of cars, under the first four items named, in shop or awaiting shop, including all freight-carrying cars not fit for service. These reports are to be filed within 10 days from January 1, April 1, July 1 and October 1.

There has been such a scarcity of coal in Washington, attributed partly to the shortage of cars, that fears have been expressed that many of the government buildings would have to be closed for lack of fuel. Shortly after the Interstate Commerce Commission had issued its announcement of the proposed hearing the elevator service in the building which it occupies was discontinued on account of lack of coal, and a committee of supply agents of the government departments that called on Secretary McGinty to see what the commission could do to hurry up their coal shipments were obliged to climb the stairs.

U. S. Chamber of Commerce to Discuss Railroad Situation

The widespread interest among the business men of the country in the important questions regarding the future course of railroad regulation which are to be investigated by the Newlands joint committee on interstate commerce, is indicated by the announcement that these subjects will constitute the main topic for discussion at a special meeting of the National Council of the Chamber of Commerce of the United States at Washington on November 17 and 18. The National Council is composed of one representative from each of the 800 or more organizations that are members of the national chamber and was created for the purpose of bringing about the continuous co-operation with the board of directors of as many business men as possible in every section of the country. It is said to be the opinion of the national chamber officials that at present no question is more prominently before the public or calls more loudly for sane and businesslike solution than that affecting the railroads. This is the first special meeting of the national council ever held, and, according to the announcement by Elliot H. Goodwin, general secretary of the national chamber, because of the interest in the hearings before the Newlands committee which are to begin on November 20, it is planned to devote much of the time of the four sessions of the council to the problem of getting rid of the conflict in the regulation of railroads between the state and federal governments and to means for the prevention of railroad strikes.

The national chamber took a leading part in the effort to settle the wage controversy between the railroads and the brotherhoods of train employees by trying to induce legislation providing for an investigation of the entire wage question by the Interstate Commerce Commission, and, as the wage question is to be one of the subjects considered by the Newlands committee, the chamber will again attempt to crystallize the ideas of its members on this problem.

It is planned to have prominent speakers on such subjects as the Canadian industrial disputes act providing for a public investigation for the purpose of permitting public sentiment to be formed in facts publicly brought out before a strike can take place, and on a plan for giving the Interstate Commerce Commission or some other commission power to fix the minimum wage for railroad employees, permitting labor to appeal to the commission just as a shipper brings rate questions to it for decision.

Interstate Commission Allows Advances in State Rates

In two instances within a week the Interstate Commerce Commission has allowed to go into effect advances in intrastate rates filed by the railroads in accordance with its orders, for the purpose of removing discriminations against interstate shippers caused by low rates made by state commissions. On the petition of Texas shippers who had asked the suspension of the new tariff filed by the Texas lines in accordance with the commission's order in the Shreveport case, the commission on Tuesday issued an order suspending until March 1, 1917 the proposed advances on lignite, cattle, stock cattle, cord wood and tan bark in carloads, but it allowed the remainder of the tariff to become effective on November 1. On October 25 it also allowed to go into effect the tariffs filed by the railroads in accordance with its order in the Missouri River—Nebraska case increasing rates applicable in the state of Nebraska, in spite of protests made by Nebraska shippers. In both states the attorney general has sought to prevent the higher rates becoming effective by application to the state courts and in both cases the railroads have secured injunctions in the federal courts restraining the states from enforcing the lower state commission-made rates. In both instances, therefore, the federal authority is still paramount. Although a state court has issued an injunction against 32 short lines in the state restraining them from making the new rates effective these roads were not parties to the injunction suit in the federal court restraining the Texas commission from enforcing its rates.

The southwestern lines filed through Agent Fonda in his Texas Lines tariff No. 2-B, rates between Shreveport and Texas points and between points in Texas. In removing the discrimination against Shreveport the railroads advanced rates throughout the state of Texas above those that had been made by the Texas commission and the shippers protested that in many instances the advances were so great as to seriously injure their business. The railroads agreed to make some adjustments that appeared necessary, at the hearing reported in last week's issue, but the commission evidently considered that the objections to the tariff were not serious except in the case of the rates which it suspended. At the same time, however, the commission ordered the case reopened for argument on the petitions filed with the commission and set a hearing at Washington for December 6 to consider to what extent if any the case shall be reopened. The Texas commission has indicated its intention of becoming a party to the case if the commission should suspend the tariff, but what action it will take in view of the partial suspension has not yet been made known. Thus far it has carefully refrained from taking any part in the proceedings before the Interstate Commerce Commission.

The Nebraska case is similar in many respects to the Shreveport case. The Nebraska commission on September 6, 1914, issued a general order reducing class rates in the state about 20 per cent. This disturbed the relation of rates from and to the principal distributing centers on the Missouri river and in interior Nebraska and a number of commercial organizations in Iowa, Nebraska and Kansas filed a complaint asking the interstate commission to remove the discrimination. The commission in its order in July held that the commission-made state rates were too low for application

as reasonable maximum rates between the Missouri river cities and points in Nebraska, and therefore too low to form the measure by which the discrimination found to exist should be removed. It therefore prescribed a scale of class rates for interstate business and ordered the roads to cease from discriminating against the interstate shippers by means of the lower state rates.

KANSAS CITY RAILROAD COLLECTION BUREAU*

By H. W. Myers
Manager of the Kansas City Collection Bureau

For years, the officers of the transportation lines of the United States have been trying to find a way to harvest the revenue of the railroads in an efficient, as well as practical way that would be satisfactory to both the railroads and their patrons. On account of the volume of the rapidly increasing business in the west, and the prospects of a continuous increase, resulting from the development of new territory, the question of the collection and protection of freight revenue became a very prominent subject with the credit officers and the agents' associations of the western lines, especially in Kansas City, Mo.

Various methods were submitted but the collection bureau plan appealed to the majority, and it was therefore decided to establish a bureau at Kansas City, if possible. We succeeded in this, and inasmuch as this is the only arrangement of the kind with which I am acquainted, I will of necessity have to confine my remarks to the organization and operation of the Kansas City Railroad Collection Bureau, thereby indicating what may and can be accomplished at other large railroad centers throughout the United States.

I will not burden you by going over the constructive work of this organization; the fact that the organization was completed, is a demonstration in itself of the closest co-operation between the local agents and between the agents and their credit officers.

It was decided by the attorneys of the transportation companies interested, that it would be advisable to first organize a clearing house association, and to form the Kansas City Railroad Collection Bureau under the Kansas City Railroad Clearing House Association. We therefore organized the clearing house, which is composed of the credit officers of the 14 lines entering Kansas City, and organized the Kansas City Railroad Collection Bureau under an executive committee of three credit officers, namely, E. L. Copeland, secretary and treasurer, of the Atchison, Topeka & Santa Fe; C. M. Carter, assistant treasurer, of the Chicago, Burlington & Quincy, and R. J. McCarthy, vice-president, of the Kansas City Southern, who dictate the policy and promulgate the rules under which the bureau operates.

I will quote the rules and regulations adopted.

The following-named railroad lines, doing business in Kansas City, Mo.: Atchison, Topeka & Santa Fe, the Chicago & Alton, Chicago, Burlington & Quincy, Chicago Great Western, Chicago, Milwaukee & St. Paul, Chicago, Rock Island & Pacific, the Kansas City Southern, Kansas City Terminal, Missouri, Kansas & Texas, the Missouri Pacific, Quincy, Omaha & Kansas City, St. Louis & San Francisco, Union Pacific and Wabash Railway hereby associate themselves under the name of the Kansas City Railroad Clearing House Association, with headquarters in the city of Kansas City, Mo., for the purpose of organizing a bureau for the collection of transportation charges.

The business of the association shall be managed and controlled by an executive committee of three persons, who shall be elected by the members of the association, and shall continue in office until their successors are elected. At the first election, one member shall be elected for a term of three years, one for two years and one for one year, and thereafter one member shall be elected annually for a term of three years.

Annual meeting of the association for the election of the executive committee, and for the transaction of such other business as may be presented, shall be held on the second Wednesday in June of each year at such place in the city of Kansas City, and at such hour as may be designated by the executive committee who shall cause notice thereof to be sent to each member.

The executive committee shall organize a bureau to be known as Kansas City Railroad Collection Bureau for the collection of transportation charges for all members; shall appoint a manager for such bureau and fix his compensation.

The organization of the bureau shall be substantially as follows, but the committee shall have the power to make from time to time such changes in the methods of transacting business thereof as may seem to it expedient.

This bureau shall be in charge of a manager, appointed by the executive committee, who shall, with the approval of the committee, employ such clerks and collectors as may be necessary for the transaction of its business.

The business of the bureau shall be the collection of all bills for freight, demurrage, switching and other charges accruing in connection with the transportation of freight for all members of the association, except such bills as may be paid direct to their respective agents prior to the delivery or shipment of freight, and also excepting bills due from one transportation company to another or other joint agency which might be established for the collection of bills covering live stock.

Bills must be sent daily to the bureau, Sundays and holidays excepted.

The manager of the bureau shall arrange to collect immediately all charges on grain or other shipments which require prompt attention in order to protect the line delivering to elevators, industries or connecting lines.

For convenience of patrons, one check may be received for the aggregate amount of bills paid at any one time by any person or firm, such checks to be drawn to the order of ..... Bank, account of the Kansas City Railroad Collection Bureau, and all bills shall be receipted in its name. In order that such receipt may be good as against the individual members of the association, agents shall stamp all bills before sending them to the bureau:

Pay.....Bank,
Account Kansas City Railroad Collection Bureau.
.....Railroad.
By.....Agent.

The manager of the bureau shall be required to consult with the executive committee in regard to the matter of accepting blanket or other bonds from shippers to insure payment of charges, and to be guided by its directions.

The manager of the bureau shall not have authority to cash checks received in payment of bills, but shall endorse them for deposit to the credit of the bureau in some bank to be selected by the executive committee, approved by the association, and shall deposit all receipts, both checks and currency, in the bank so selected. Against this deposit the manager of the bureau shall draw checks daily for the distribution of all collections made; such checks to be drawn to the order of the respective railway companies, members of the association, and to be remitted to the respective agents with a list of the bills covered thereby, or shall be deposited according to instructions of the financial officer of the railway company.

Definite instructions must be given by the executive committee to the depository bank to the effect that no checks against the funds of the Kansas City Railroad Collection Bureau issued by the manager shall be honored unless drawn in favor of a member of the bureau.

In the event that exception is taken to any bill, the collector shall obtain written statement of the exceptions, such statement and all parts of the bill shall be returned by the manager to the local office, and receipt taken for it. When correction is made, it shall be treated as a new bill, and take its regular course.

Bills shall be considered payable on presentation, but for the accommodation of patrons who pay by voucher, a reasonable length of time will be allowed to voucher their bills.

If bills without sufficient reason are not paid when due, in accordance with the above provision, the manager shall at once notify in writing the agents of all members.

The expense of the bureau shall be divided between the members on a basis of number of bills collected and total amount collected, using an average of the combined proportion. Illustration: Percentage of bills collected, 20; percentage of money collected, 10; proportion of expense chargeable to interested line, 15 per cent.

The distribution shall be made by the manager, who shall on the first day of each month furnish each member of the association with a statement showing the total number and amount of bills collected, the number and amount collected for the member to whom the statement is sent, the total expenses of the bureau for the preceding month, and the amount apportioned to the member to whom the statement is sent. On the following day the manager shall make drafts on the respective members for the amount found to be due from each, payable to.....Bank, account Kansas City Railroad Collection Bureau, manager, such drafts to be promptly paid when presented and correction of error if any should be found, made in the following month.

This association to become effective must be entered into and approved by all Kansas City lines, but any member shall have the privilege of withdrawing upon serving six months' notice in writing after the expiration of the first five months. It is further agreed that upon two-thirds vote of the association it can be disbanded at any time within the first six months.

I will next take up briefly the operation of the collection bureau:

All bills collected by the bureau are listed by each railroad daily on form six made in triplicate, at the close of each day's business, and delivered to the collection bureau the same evening. One form is receipted by the collection bureau and returned to the local freight agent. The bills are sorted and necessary manifesting done the same night. Grain, hay and produce bills are collected on presentation the day following the receipt of the bills from the railroads. Miscellaneous

*From a paper read before the annual meeting of the Society of Railway Financial Officers at Washington, October 19, 1916.

carload bills are manifested by the bureau on form seven in duplicate, the bills from all lines for one consignee being listed on one manifest. A copy of each miscellaneous carload bill and manifest is retained by the bureau until payment is received, affording practically a ledger account with each patron for all railroads.

Such bills as are to be distributed by mail, are deposited in the post office not later than 4:30 a. m., which insures first morning delivery to payor. Three collectors are employed in the collection of grain, hay and produce bills, which bills are presented not later than 10:00 a. m., and collected not later than 4 p. m. the day following receipt of them from the railroads.

Street collectors are employed only where bills are to be paid on presentation, which is the case in commission business, such as grain, hay and produce. All other settlements are delivered to the bureau by the patron, or by mail. All transfer companies to whom credit is extended, are under bond, and settlements are made twice a week, namely, on Tuesday and Friday, according to the stipulations of the blanket bond, form ten, which must be endorsed by a responsible surety company.

Large shippers, who handle heavy shipments of l. c. l. freight, and use their own teams, also settle twice a week. Where these arrangements are made, the agents list the bills to the bureau on the day before settlement days agreed upon, setting same out in detail in triplicate on form six, and the bills are payable on the day following presentation.

When collections are made, the original statement copy of form six is returned to the road with the remittance, one copy being retained in the bureau files, and one copy accompanies the bills to the payor, together with form eight; the form six thereby serving the purpose of a sub-cash book for both the bureau and the local office, and eliminates the necessity of re-writing collections in a sub or general cash book.

Miscellaneous carload bills are payable on delivery of cars to consignees, or in 48 hours after presentation of the bill.

All collections received during the day are distributed by check during the same night, the checks being delivered to the local offices by eight the following morning. All funds collected by the bureau are deposited in the bank by 9:30 the day succeeding collection.

Incorrect bills returned by consignee must be accompanied with suitable explanation, and with supporting papers; less than carload bills are returned to the local offices attached to the form six on which they were originally listed to the bureau. Incorrect carload bills are transmitted to the agent on form six, accompanied by statement on form nine, or letter when necessary.

A uniform card index of patrons is maintained, and no bills are sent to the Kansas City Railroad Collection Bureau for collection from patrons whose names do not appear therein.

A committee was appointed by the agents' association, before the Kansas City Railroad Collection Bureau was opened, of which I was a member, for the purpose of determining just what the cost of collections were, and what amount of money we would collect monthly, and I want to say here and now that we failed in our duty. Instead of being systematic in our check of time, postage, car fare, stationery, etc., we, after some discussion and some investigation through a series of reports with the agents, decided it was costing us about $2,350 to collect $2,500,000 which would be our average monthly collections. A report was made accordingly, and submitted to show the result of our efforts.

The business for all lines for the month of August, 1916, amounted to $3,350,437.69, while the cost of operating the bureau was but $2,140.71; this cost includes not only labor, but rent, light, postage, stationery, telephone service and in fact everything pertaining to the operating cost.

You will note by comparing the estimate with the actual amount of business handled in August, that we have gradually increased in receipts until the estimate made missed the actual figures practically $1,000,000 a month.

A comparison of the cost of operation on the other hand, shows we have gradually decreased until the cost last month for collecting $3,350,000 was but $2,140, or six cents per one hundred dollars.

The greater saving, however, is the saving of interest on the money which we place in the hands of the railroads more promptly. This is the epoch in the history of the railroad world when specializing is not only desirable, but necessary. If we wish to keep apace with the times, we must adopt the same advanced methods as the commercial world, or, better still, improve them if possible. We are specializing in the collection of transportation charges.

It is a well known fact that when collections were being made by the railroads themselves, the payors were fully acquainted with the fact that they must practically clear their accounts at the end of the month, in order to protect the agent from severe criticism, therefore, they would keep falling behind from the first of the month, until the last, promising the collector or agent that they would make settlement within the next few days, or the following week, stating they had been so busy they could not check the bills, or offer some other equally frail excuse, until the end of the month was reached, at which time they would make a heavy payment. Under this plan, the public had the use of the money, and the railroads, who are heavy borrowers, at all times, were paying interest on a vast amount of money unjustly. Under our plan of collection, we are just as rigid one day as another, and if bills are not paid when due, we are immediately after the payor, and insist that remittance be made.

The rate making bodies of our transportation lines base their freight rates, as I understand it, on a cash basis, and it is fully understood at the smaller stations that freight charges are cash, while in the larger cities, where the greater volume of business is handled, we have, unfortunately, fallen into the practice of extending credit on freight charges, which courtesy has been taken advantage of to such an extent that there are millions and millions of dollars in the hands of the public in the United States today, that rightfully belongs in the treasuries of the railroads.

In the commercial world, it is the general practice to allow a per cent off for cash, showing conclusively that their prices are based on a credit basis, thereby permitting a reduction in the cost, for cash. Unfortunately, our rates are just the reverse. If we were permitted to add two per cent to our published rate on all credit business, the transportation lines could well afford to extend a line of credit, such as is now being extended in the larger cities, but inasmuch as our rates are compiled on a cash basis, we practically reduce our tariffs when we extend credit for any length of time.

It has been estimated that through specializing on collections through a bureau, we have created a saving in interest alone of many thousands of dollars yearly, and I believe I am conservative when I claim we are making a saving of from eight to ten thousand dollars yearly in salaries.

There were 34 collectors in the service of the railroads at Kansas City drawing about $2,400 monthly before we started, and four or five of the larger lines had supervising collectors, paying them $75 or $80 per month each, making a total roll of about $2,800. Our entire labor roll last month with an increase in business of $1,091,000 over the same month a year ago, was but $1,633.

The increase in business in Kansas City the past year has been from 25 to 30 per cent. Notwithstanding this large increase, we have taken care of the collections for all lines entering Kansas City with a total payroll of but $1,633 monthly. It is fair to assume that with an increase of 25 to 30 per cent in business, it would have been necessary for the roads to increase their expenses accordingly, but if the

roads had been able to take care of the collections with the same force, at an expense of $2,800 per month, and we with an expense of $1,633 per month, we have created a saving of $1,200 per month, or $14,400 per year. I think I am very conservative therefore when I say the saving in the cost of collection of freight charges is from eight to ten thousand dollars yearly.

Another benefit, which is one of the most, if not the most, important benefit of the collection bureau, is the separation of credits from the solicitation of freight by the traffic department. It is, I believe, unnecessary for me to dwell on this point, as you all realize the importance of discontinuing such a vicious practice, as well as the magnitude of its possible growth if it is permitted to exist.

We also derive a benefit from the more correct revision of freight bills. This is brought about by the rendition of a comparative statement monthly, showing the percentages of bills returned to each railroad for correction. This not only creates competitive ideas in the minds of the agents, but inasmuch as all bills returned can easily be obtained by the agent personally, it gives him an opportunity of ascertaining and correcting the faults. This has been fully proven by the fact that while our percentage of bills returned in the early existence of the collection bureau was 8 per cent, it now runs about 2½ to 3 per cent.

For the past number of years, the railroads have been making a decided effort to create harmony between themselves and the public. The organization of collection bureaus throughout the United States is in my opinion a long step in the right direction. Some of those present will discredit this statement, but I believe we can prove it logically. The first and most substantial proof I will offer is, a house to house canvass of the shippers with whom we transact business showed 94 per cent in favor of this plan of handling collections. Their reasons are obvious—formerly fourteen collectors called at their places of business, visited with their bookkeepers or clerks while they were verifying the bills, and fourteen checks were written to fourteen railroad agents; now, the business is handled by mail, with no loss of time, and one check serves the purpose of fourteen.

When we have the approval and support of the public in perfecting a plan or method of handling business with the public, we have created a more satisfactory and harmonious condition between the public and the transportation lines.

When we remove disputes over the payment of bills from the local, general or traffic agents of our individual line or lines, we improve the friendship of the public to the railroads themselves. The collection bureau was in very bad repute for a time with the public, and permit me to say the fault was ours. When the bureau was opened, we lacked system throughout, which resulted in duplicate collections, and demands for payment of bills that had previously been paid, and many other annoyances. The Commercial Club even called a meeting of the shippers with a view of our abolition, but they had waited too long; we had succeeded in completing our organization and adjusting our differences before the date set for the meeting and a vast majority of the big shippers present were in favor of its continuance. One of the healthiest signs of the satisfaction of the public to my mind is, that in the face of the very bitterest opposition by some, caused by our early inefficiency, the public practically became a unit in supporting the plan, as soon as our internal troubles were adjusted, and our position and purpose was explained and understood, until now, with 94 per cent of the shippers in favor of the Clearing House or Bureau, we probably could not abolish it if we cared to.

The local representatives of the packing interests are well pleased in the handling of their accounts by the Kansas City Railroad Collection Bureau. Formerly, they would make up their settlements to the railroads individually, transmitting the bills and checks to the lines for signature. The bills would not be returned in all cases promptly, but would come back to them in piece-meal, each line checking the bills when it was convenient. Under our method of handling, the packers make their settlements for all lines at one time, and deliver the settlements to us, and on the day of receipt of the settlements, the entire settlement is checked and the bills receipted and returned. This is done not only for them, but all other large industries.

We must not overlook the fact that close collections by one line as against the lax methods of another, result in the ultimate diversion of business against the line that is the more rigid; under the collection bureau plan, the rigid lines are protected against the loss of business from this cause.

I also want to call your attention to the fact that we have in effect a blanket bond covering all railroads, which bond is furnished by grain and hay dealers, thereby protecting the freight charges until the board of trade weights are secured, enabling the railroads to pass the bills on the correct weight, eliminating overcharges and undercharges and the expense and annoyance incident to the adjustment of them.

There are a number of lines in Kansas City that handle very little grain, and, inasmuch as the minimum bond issued is $1,000, you can readily see the expense to the patron of furnishing sufficient bonds to protect all lines, when we formerly demanded an individual bond for each line. Under our plan, all lines are accorded the same protection, and all lines are protected. These bonds are furnished by grain firms, hay dealers and some other firms, when we feel that occasion demands.

We also maintain a uniform list of patrons, under the index card file system, and when a name is added to our list, a card is forwarded to all lines, giving the name of the firm, and location; when we discontinue handling the account of any patron, notice is sent to all lines and the card is removed from the file.

I state without fear of successful contradiction, that the present plan of collecting freight charges in Kansas City has proven successful. We have not reached the acme of perfection which is desired by all organizations, but any business of any importance is always susceptible to improvements, and corrections, and experience will doubtless bring some of the defects to light, and suggest necessary remedies for them.

I know we have taken some rapid strides in the right direction in the past year or so, which should be accredited to the natural evolution of a new business, started without a model by which to be guided, resulting in a definite, decisive, efficient organization operated on a systematic basis, that can be installed in any large city without causing friction or dissatisfaction.

The fundamental principles underlying the plan of uniform collection through an office operated outside of the railroad agencies are sound and feasible, and in anticipation of a further expansion of business for the railroads, and the importance of protecting their earnings in such a way as to avoid loss from industrial failures, limitations must be placed around the accumulation of outstanding accounts, bearing in mind always the privilege of verification by industries handling a large volume of business. We should have installed a bureau in Minneapolis, St. Paul, Council Bluffs, Omaha, St. Joseph, St. Louis, Chicago and many other cities long before this, thereby strengthening Kansas City, as well as benefiting both the public and the railroads; it should, in fact, be a national plan.

Discussion.—In the discussion which followed it was brought out that the manager of the collection bureau was made the agent for each road individually, so that he was empowered to give a legal receipt for freight charges which were collected by the bureau. It was pointed out that whereas Mr. Myers had commented on the increase in amount of money collected, this did not accurately measure the work of the bureau, since it was no more troublesome or expensive

to collect a bill for $2,000 than for $1,000, and much of the increase in business during the last year had been in the nature of bigger bills for the same shippers rather than an increased number of bills.

I. C. C. REOPENS HEADLIGHT CASE

A hearing was held at Washington on October 30 and 31 before the members of the Interstate Commerce Commission to enable the railroads to present additional testimony in connection with the commission's order requiring locomotives to be equipped with high-power headlights with sufficient intensity to enable persons with normal vision, in the cab of the locomotive, to see a dark object the size of a man for a distance of 1000 feet, under normal weather conditions. The commission has postponed the effective date of its order until January 1 and the hearing was called for the purpose of taking testimony regarding a series of tests made with electric headlights on the New York Central just outside of New York on September 28, at which Commissioner Clark and the officers of the commission's boiler inspection department were present.

The hearing at once developed into a contest between the representatives of the railroads and the officers of the engineers' and firemen's brotherhoods, who challenged the fairness of the test, which they had refused to have anything to do with, and sought to prevent the introduction of further testimony. After a day and a half of testimony regarding the test the commission granted the request of the railroad attorneys, C. C. Paulding, solicitor of the New York Central, D. E. Minard, assistant general solicitor of the Erie, and S. B. Lloyd, assistant general counsel of the Pennsylvania, and ruled that each side should be allowed to present 20 witnesses before an examiner and that the evidence need not be confined to the New York test. This gave the railroads an opportunity to put on the witness stand a number of locomotive engineers, who testified that the dazzling glare of the electric lights obscured signals and was dangerous. The brotherhoods also expected to call as witnesses engineers to testify in favor of the electric lights. W. S. Carter, president of the Brotherhood of Locomotive Firemen and Enginemen, said he proposed to call as witnesses the representatives of the commission who were present at the test and he also asked the commission, before making any change in its order, to have tests of its own made.

At the opening of the hearing Mr. Carter told the commission that the New York test had been conducted expressly for the purpose of proving that the headlight order was impracticable, and he asked that, as the commission was represented at the test, it pass on the results without further hearing. When Chairman Meyer said that the case had already been reopened for further testimony he asked that the witnesses be limited to those subpoenaed by the commission. Mr. Paulding said that as serious charges had been made against the fairness of the test he wished to introduce testimony to meet them and he also wished to put on the stand a number of engineers. The roads had been taunted, he said, by statements that they have been unable to get engineers to testify in this case. At the hearings last year only two engineers were willing to testify for the railroads and there had been considerable difficulty since in getting engineers to testify, he said, because those two had been expelled from the brotherhood because of their testimony. In spite of this fact, however, he said, a large number of engineers who are familiar with the operation of high-power headlights were willing to testify "under proper safeguards."

Chairman Meyer said that if practicable the commission wished to confine the witnesses to one representing the carriers, one representing the employees and one called by the commission. A. G. Trumbull, assistant to the mechanical superintendent of the Erie, testified regarding the tests for the roads. A. G. Pack, assistant chief boiler inspector, was called as a witness by Mr. Carter, and G. E. Murray, headlight electrician for the Chicago & North Western, was called as a witness for the commission.

Mr. Trumbull gave a detailed description of the tests, in which steam and electric locomotives were used, equipped with 250-watt, nitrogen bulb electric headlights furnished by the Pyle-National Company, with 9 by 18 in. reflectors. The headlights were adjusted by a representative of the headlight company. He said that when the locomotive on which he was riding was moving north and rounding a curve, facing three locomotives standing headed south, equipped with electric headlights, the effect was to seriously interfere with his vision. As he approached the opposing locomotives, it was impossible to tell whether any hand signals were being given and indications of the automatic block signal lights on a signal bridge across the track between him and the opposing locomotives were greatly confused. The green light was completely obliterated until the locomotive on which he was riding approached within a distance of about 500 feet, the red light was rendered very much less distinct and the yellow light appeared white, and he was not able to distinguish the signals correctly until within a distance too short in which to stop, except under the most favorable conditions. He also saw confusing reflections from other signal lenses. He was unable to distinguish a flagman at as great a distance as he could under normal conditions and the light from the flagman's lantern was obscured. On one test he missed the flagman entirely. The rear markers on a train ahead were also rendered much less distinct. A red marker was mistaken for yellow by several mechanical officers and as the locomotive approached the bridge the lights were obscured and he was unable to see any of them for a time. White classification lights on the locomotive ahead were practically invisible for distances exceeding 200 or 300 feet. In the tests to see at what distance objects on the track could be seen, a man dressed in dark blue overalls walked down the track toward the locomotive and the observers in the locomotive indicated when they saw the "object" by blowing a whistle, whereupon the locomotive was stopped and the distance was measured. John McManamy, assistant chief inspector of locomotive boilers, thought he saw the object at a distance of 2,389 ft., but after the distance had been measured he asked for a re-test and saw the man at a distance of 994 ft. A. G. Pack, assistant chief inspector, blew the whistle on a distance of 772 ft. and various railroad mechanical officers blew the whistle at distances ranging from 552 to 764 ft. The eyes of the railroad officers were tested afterward and they were found to have normal vision according to the standards prescribed for locomotive engineers.

Mr. Trumbull said these tests had confirmed his opinion that for congested suburban territory with multiple tracks and a large number of signals the high-power headlight is positively dangerous.

Mr. Carter said that as no representatives of the brotherhoods were present at the hearing he would ask Frank McManamy, chief inspector of locomotive boilers, to cross-examine the witness. Mr. McManamy asked why dimmers had not been used on the lights during the test. The witness replied that the order permitted the use of dimmers only when standing at stations or in yards. Mr. McManamy also sought to show that the tests were not conducted under representative conditions and that the Erie has some signals which it is not possible to see in time to stop within 500 feet. He also asked if fusees were not used as an additional safeguard to enable engineers to see flagmen, and showed that the witness had had comparatively little recent experience in riding locomotives at night. Mr. Carter also questioned the manner of conducting the test, but the witness said it was conducted under actual operating conditions.

Mr. Pack testified that he had run an engine with an electric headlight for 11 years on the Colorado Springs & Cripple Creek District, before becoming connected with the commission, and had never experienced any difficulty with them. Although he admitted that his road was mostly single track with no block signals he said he ran into a station facing an electric headlight on the locomotive of another road and could see the order boards back of the light as plainly as he could if it had been an oil headlight. He read from a program prescribing the conditions under which the test was conducted, which he said he had seen before going to New York for the test. The railroad lawyers asked that it be put into the record. Mr. Pack said that he had never experienced any difficulty in seeing flags or reading signals governing the track on which he was running, with electric headlights, that he never saw any "phantom" signals or confusing indications caused by high power lights, nor any other conditions that would interfere with safe operation if the rules were observed. He regarded high-power headlights as one of the greatest safety devices yet used on a locomotive. Cross-examined by Mr. Paulding he said that he was having trouble with his eyes on the night of the test, caused by a pair of new glasses, that some steam leaking from the locomotive occasionally interfered with vision, and that the headlights used did not seem to be giving results up to standard. He said he had interviewed more than 1,000 engineers who had operated with electric headlights and had never heard one express an unfavorable opinion of them.

Mr. Murray testified in favor of the electric headlights, saying they had given satisfactory results on the North Western, but that during the tests in New York he thought that the lights were not up to standard. He judged from the color of the light that it was below 500,000 beam candlepower. Mr. Paulding said that by actual measure the candlepower was 550,000. Mr. Murray said that the requirement of the commission would relieve his company from observing state laws with even more rigid requirements, and in reply to questions by Commissioner Clark he said he had never known of an accident on his road caused by the headlights of the nitrogen bulb type. Asked whether he thought the proposed rule of the commission was a feasible one for all roads he said it would be necessary for each road to study its own conditions and to adopt the type of light most suited to its requirements. In reply to a question by Chairman Meyer he said he did not raise any question about the fairness of the test.

Mr. Paulding then asked permission to introduce additional witnesses, saying that other tests under similar conditions had been made to which a large number of engineers had been invited as observers, that the railroad officials had a firm conviction that a uniform rule, except one with only minimum requirements, would not work satisfactorily on all roads, and they wished to offer witnesses who had had actual experience. This was opposed by Mr. Carter, who said the roads had had ample opportunity to present witnesses but had avoided putting on real experts, and that the New York tests were unfair both to the employees and to the commission because they were ex parte. He preferred to have the case rest, but said that if the railroads were to put on more witnesses he would want to do the same and would call the representatives of the commission who were at the test. W. S. Stone, grand chief engineer of the Brotherhood of Locomotive Engineers, said he hoped the commission would not extend the scope of the hearing but that there are 28,000 men now riding behind electric headlights and that if the railroads brought in additional witnesses he could get 500 men "who will testify against anything they may say." The commission took a short recess and announced that each side might put on 20 witnesses.

On Tuesday afternoon the hearing was resumed before Examiner-Attorney E. W. Hines. C. P. McGinnis, special representative of the Pyle-National Company, who had adjusted the lights before the New York test, was called as a witness for the railroads. He said he had left nothing undone to get the best results possible and that the lamps used had been sold from the regular stock, but that they had not given entirely satisfactory results. He said that there was a wide variation in reflectors and lamps and that if it had been possible to try out several lamps and reflectors it would have been possible to match up a lamp and a reflector that would give better results. He had never had any complaints but had occasionally found in tests that he could not get the required distance with the lights. He said that there are about 40,000 Pyle-National headlights in service.

Several locomotive engineers gave testimony regarding the effect of the high-power lights in obscuring signals. J. Doherty, road foreman of engines of the Michigan Central, who was a locomotive engineer up to ten months ago, said that he had never run an engine equipped with an electric headlight but that in the Chicago suburban territory where the Illinois Central has engines which are so equipped, the light was so intense that when approaching them it was impossible to see signals back of the lights until they had passed and that it was impossible to judge the distance of an opposing train. Also at Michigan City where his track is paralleled for a short distance by the Chicago, Indianapolis & Louisville, the electric headlights used by the latter obscured his view of a three-position quadrant signal on his own track. He had been present at tests on the New York Central at Harmon and had been unable to see signals when facing an electric headlight, or the red signals had appeared green. He thought that electric headlights were a positive menace to safe or prompt transportation on multiple tracks and said that the better the light the worse it is in a fog because of the effect of the moisture in the air on the rays of light. He said that if dimmers were used when passing stations or signals they would have to be used most of the time on a busy railroad. Mr. Doherty said that the views of most of the engineers he has talked with coincide with his. Mr. Stone asked how he had managed to avoid accidents long enough to be promoted if the headlights were so dangerous. Mr. Doherty replied that he had managed to get along without doing any damage by stopping or slowing down when passing the electric lights. Mr. Carter emphasized the fact that Mr. Doherty had recently been promoted and asked if it was because he had expressed an unfavorable opinion of the electric light. He also asked if Mr. Doherty had not been largely employed at tests since his promotion. Mr. Doherty said he had been at but two tests.

B. B. Milner, engineer of motive power, New York Central, described tests conducted on October 26, at which a large number of engineers and representatives of the Public Service Commission were present. O. P. Keller, an engineer on the Manhattan and Broadway Limited trains of the Pennsylvania, who was present at the test, said that he would rather have no headlight than the electric blinding light in the eyes which prevents seeing signals or gives false indications. If dimmers were used when passing trains or stations they would be required most of the time on a busy railroad.

HEATING OF PASSENGER CARS IN ARGENTINA.—By a decree of August 21, 1916, the Argentine government has made the heating of passenger cars compulsory during the winter months. At present trains are not heated. During the last two years Argentina has experienced abnormally cold winters and the traveling public has been subjected to great discomfort. The decree states that the Direction General of Railways will, after an agreement with the several companies, fix dates for the presentation of plans and the installation of heating appliances.

General News Department

The United States Civil Service Commission announces an examination, November 28, for examiner of accounts for the Interstate Commerce Commission; salaries from $1,860 to $3,000. Applicants must be not over 48 years old.

The four arbitrators who were selected several weeks ago, by fourteen Midwestern railroads and the officers of the Switchmen's Union, to agree upon two neutral arbitrators to complete an arbitration board for the settlement of the pending wage dispute have failed to agree, and on Wednesday sent a joint telegram from Chicago to W. L. Chambers, of the United States Board of Mediation and Conciliation, advising him of the failure. The government board will now select the neutral arbitrators.

E. P. Ripley, president of the Atchison, Topeka & Santa Fe, recently gave out a statement at Kansas City, Mo., to the effect that negotiations are under way with the Chicago, Burlington & Quincy to secure an entrance for the Santa Fe into St. Louis. The arrangement will involve the construction of a line from the Burlington at Mexico, Mo., to the Santa Fe at Carrollton, about 75 miles. This line has already been located by the Burlington. In addition to giving the Santa Fe access to St. Louis, it will give the Burlington a low grade line from St. Louis to Kansas City. The shortest existing line between Mexico and Carrollton is that of the Wabash, 111 miles.

Two more of the western railroads negotiating with the shopmen's unions as to wage increases have settled their differences with the men. The Chicago & Eastern Illinois has granted a general increase of 2½ cents an hour to all machinists, boiler makers, blacksmiths, sheet metal workers, electrical workers and their helpers and apprentices with the exception of machinist helpers, whose rate has been increased to 24½ cents an hour. An eight-hour day has been granted for the back shops but the remainder of the men will continue to work nine hours. The shopmen on the International & Great Northern have been granted an increase which will total about $100,000 a year on the whole road. The increase is retroactive dating from October 1.

The Kentucky Court of Appeals, at Frankfort, Ky., October 5, affirmed a fine of $500 against the Louisville & Nashville for failing to have a coach for colored people on a transfer train at Cincinnati. The court held that the law requires separate cars for negroes on all trains regardless of whether there are any negroes desiring to ride on that particular train. The fine was for an offense committed in April, 1915. The road also was indicted for operating the same train without the separate car, on May 1, 1915. The Court of Appeals holds that the offense is continuous and that each day the law is violated does not constitute a separate offense, but only cumulative evidence of the same offense. Consequently, the conviction under the indictment for operating the train in April is a bar to prosecution under the indictment for operating the train May 1; the second indictment was returned before the conviction under the first one.

Marketing Southern Pine Abroad

A special committee of the Southern Pine Association appointed to devise plans for the organization of an export selling agency, met at New Orleans, La., on October 17. Edward Hines, of the Edward Hines Lumber Company, Chicago, chairman of the committee, emphasized the necessity of co-operation by the manufacturers of Southern yellow pine in the marketing of their products in foreign countries following the termination of the war. A resolution was adopted providing for the appointment of committees of three manufacturers in each of the seven states from which Southern yellow pine is exported, and the organization of a general committee including these state representatives, to perfect a scheme for co-operation in foreign marts. A number of those present, representing firms which had a large export business in the past, expressed a desire that the identity of their companies should be maintained in any selling organization which they might join, and the sentiment of the meeting was that this could be done without interfering with the work of the agency. M. B. Nelson, of the Long Bell Lumber Company, Kansas City, Mo., was elected permanent chairman of the committee.

The following companies were represented at the New Orleans meeting: Edward Hines Lumber Company, Chicago, Ill.; Kirby Lumber Company, Houston, Tex.; Gilchrist-Fordney Company, Laurel, Miss.; Bagdad Land & Lumber Company, Bagdad, Fla.; Sabine-Tram Company, Beaumont, Tex.; Stout Lumber Company, Thornton, Ark.; Great Southern Lumber Company, Bogalusa, La.; J. J. Newman Lumber Company, Hattiesburg, Miss.; Lutcher-Moore Lumber Company, Orange, Tex.; Standard Export Company, New Orleans, La.; H. Weston & Co., Logtown, Miss.; Eastman-Gardner & Co., Laurel, Miss.; Kaul Lumber Company, Birmingham, Ala.; Gulf Lumber Company, Houston, Tex.; Stearns Lumber & Export Company, Pensacola, Fla.; Jordan River Lumber Company, Kiln, Miss.

St. Paul Electrified 336 Miles

The Chicago, Milwaukee & St. Paul, on November 1, put in operation its third electrified district; the line from Deer Lodge, Mont., to Alberton, 110 miles. This makes the total length of line electrified, Harlowton to Alberton, 336 miles. The last district to be electrified, that from Alberton to Avery, is expected to be put in operation in January. With the completion of this section the total electrified mileage will be 440.

The Hudson Bay Railway

At Ottawa last week before the Canadian Royal Commission, W. A. Bowden, chief engineer of construction of the Department of Railways, gave a summary of the present condition of the Hudson Bay Railway.

He said that the railway would be about 425 miles long, and that the railhead would be at mile 332 this fall. The road, exclusive of rolling stock, will cost about $16,000,000, the harbor work another $10,000,000, and the elevator $1,000,000. The ruling grade will be 0.4 per cent.

"The problem is more complex than any other I have had to deal with," said the engineer, when asked what benefits are to be derived from this great expenditure. He outlined the advantage in distance. From the grain centers to the northern terminus, Port Nelson, the distance is the same as from Winnipeg to Fort William. The distance from Port Nelson to Liverpool is the same as from Montreal to Liverpool. Accordingly, in distance there is a saving by the Hudson Bay route equal to that from the head of the Great Lakes to Montreal. The cost of haulage over this distance is from 5 cents to 12 cents a bushel.

"The information we had when we started the work has proved very unreliable during the five seasons we have been working. For example, our information was to the effect that the route through Hudson Bay would be open to navigation about the last of June of the 1st of July. The facts are that it is not open until the last of July or the 1st of August. The date when it closed was not fixed in that early information. However, ordinary tramp steamers have left Port Nelson on October 23, and have gone through without damage by ice. A government tug went through on November 1, but the ice would have damaged a tramp. By having observation points at the straits to direct the boats to the open water, it is possible that the season could be lengthened past October 23."

"Would the grain be harvested in time to be shipped this way?" he was asked.

"For August the grain shipped would be that which had been left over from the year before. There is always some at the head of the Great Lakes at that time. The new grain would

come forward in September, and could be shipped in September and October."

"Before this great expenditure was undertaken," asked one of the commissioners, "were any steps taken to insure steamship service when the road is completed?"

"No, I do not think there should have been," replied the engineer, "because such a service would have been based on the worst conditions that might arise, and therefore at the maximum expense." He believed that for the first few years the government would have to buy or charter boats to demonstrate that the route was a safe and economical one. For example, in 1913, the insurance rate was guessed at, and was very high. There was a boat lost that year, with the result that the rates asked the next year were too high to be considered, and since then the government has carried no insurance on the boats going over the Hudson Bay route. During one season 38 boats went across the bay; and there have been no accidents during the past three years.

He explained that the harbor at Port Nelson was to be 20 feet deep at low tide, and 30 feet deep at the wharves. Thus, boats drawing more than 20 feet would have to wait for high tide to get to the wharves, but would have water to a depth of 30 feet when lying at the wharf. There is little settlement along the route of the Hudson Bay Railway, and most of the land is not suitable for cultivation.

Mr. Bowden gave the commission information regarding the canals from Lake Superior to Montreal, showing that with the completion of the Welland canal there would be a 24-foot route from Port Arthur to the head of the canals on the St. Lawrence river. Those canals are only 14 feet deep. He was asked whether the deepening of the St. Lawrence canals was to be carried out, and said that it had not yet been decided on. It is a disputed point whether it is advisable to deepen them as it might be more economical to use barges to carry the grain through them.

Proposed Municipal Railroad in Baltimore

The City of Baltimore, Md., is thinking of establishing a municipal railway, and the mayor has proposed to the officers of the city that appropriations looking to that end be made during the coming year. Mayor Preston presents the reasons for starting such an enterprise in the shape of a communication telling of the success of the New Orleans city railway, as follows:

"The muncipal railroad in operation in the city of New Orleans, the only municipally-owned railroad in the United States, is a terminal switching railroad, operated and controlled by the municipality. It is operated by 16 citizen taxpayers and the mayor, who is president of the commission, the members being appointed by the mayor with the approval of the council, who serve without salary. The purpose of this road is to supply comprehensive, economical and nondiscriminatory switching service. It transfers cars from railroad to railroad; from railroads to wharves; from wharves to railroads; from railroads to industries, and from industries to all the transportation outlets at a low and uniform charge, and is open in common to all the railroads.

"It is handled with its own equipment and the operation of any other railroad over the tracks of the public belt line railroad is prohibited by law.

"After successful operation of four years, the practical utility of the enterprise has been demonstrated and the project has been approved by popular vote (practically unanimous) on an amendment to the Constitution of the State of Louisiana. The charge for switching is two dollars a car for each movement, which movement includes both the delivery of the loaded car and the return of the empty. The New Orleans road is much longer than Baltimore needs, and I believe that the switching charges can be made much less, probably one dollar per car, and the switching could be done in Baltimore by electric or oil motors."

Mayor Preston, with other city officers, proposes to visit New Orleans.

The June Mechanical Conventions

The executive committees of the Master Car Builders, the Master Mechanics and the Railway Supply Manufacturers Associations will hold their fall meeting in the office of J. W. Taylor, secretary of the railroad organizations, in the Karpen building, Chicago, on November 10. The purpose of the meeting is to decide the time and place for holding the annual meetings and exhibit for 1917. Several cities have extended invitations to the associations, among them being Atlantic City Chicago and Cleveland.

Association of American Railway Accounting Officers

E. R. Woodson, secretary of this association, Woodward building, Washington, D. C., announces that, by a vote of a majority of the association's entire membership, the next annual meeting will be held in Richmond, Va., beginning May 30, 1917.

MEETINGS AND CONVENTIONS

The following list gives names of secretaries, dates of next or regular meetings and places of meetings.

AIR BRAKE ASSOCIATION.—F. M. Nellis, Room 3014, 165 Broadway, New York City.

AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—F. A. Pontious, 455 Grand Central Station, Chicago. Next meeting, January, 1917, New York.

AMERICAN ASSOCIATION OF DINING CAR SUPERINTENDENTS.—H. C. Boardman, D. L. & W., Hoboken, N. J. Next convention, October, 1917, San Francisco, Cal.

AMERICAN ASSOCIATION OF FREIGHT AGENTS.—R. O. Wells, Illinois Central, East St. Louis, Ill. Next meeting, June, 1917, Denver.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—E. H. Harman, Room 101, Union Station, St. Louis, Mo.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—E. B. Burritt, 8 W. 40th St., New York.

AMERICAN ELECTRIC RAILWAY MANUFACTURERS' ASSOCIATION.—H. G. McConnaughy, 165 Broadway, New York.

AMERICAN RAILROAD MASTER TINNERS', COPPERSMITHS' AND PIPEFITTERS' ASSOCIATION.—W. E. Jones, C. & N. W., 3814 Fulton St., Chicago.

AMERICAN RAILWAY ASSOCIATION.—J. E. Fairbanks, general secretary, 75 Church St., New York. Next meeting, November 15, 1916, Brown Palace Hotel, Denver, Colo.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W., Chicago. Next convention, October 16-18, 1917, St. Paul, Minn.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—E. H. Fritch, 900 S. Michigan Ave., Chicago. Next convention, March 20-22, 1917, Chicago.

AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.—J. W. Taylor, 1112 Karpen Bldg., Chicago. Next meeting, June, 1917.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—Owen D. Kinsey, Illinois Central, Chicago.

AMERICAN SOCIETY FOR TESTING MATERIALS.—Prof. E. Marburg, University of Pennsylvania, Philadelphia, Pa.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—Chas. Warren Hunt, 220 W. 57th St., New York. Regular meetings, 1st and 3d Wednesday in month, except July and August, 220 W. 57th St., New York.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York. Next convention, December 5-8, 1916, Engineering Societies' Bldg., New York.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—F. J. Angier, Supt. Timber Preservation, B. & O., Mt. Royal Sta., Baltimore, Md. Next convention, January 23-25, 1917, New York.

ASSOCIATION OF AMERICAN RAILWAY ACCOUNTING OFFICERS.—E. R. Woodson, Rooms 1116-8 Woodward Bldg., Washington, D. C. Annual meeting, May 30, 1917, Richmond, Va.

ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS.—George W. Lyndon, 1214 McCormick Bldg., Chicago. Semi-annual meeting with Master Car Builders' Association.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—Willis H. Failing, Terminal Station, Central of New Jersey, Jersey City, N. J. Next meeting, May, 1917, Louisville, Ky.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W., Room 411, C. & N. W. Sta., Chicago. Next meeting, October 31 to November 3, 1916, Hotel La Salle, Chicago.

ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—W. L. Connely, Superintendent of Telegraph, Indiana Harbor Belt, Gibson, Ind. Next annual meeting, September 18-20, 1917, Washington, D. C.

ASSOCIATION OF TRANSPORTATAION AND CAR ACCOUNTING OFFICERS.—G. P. Conard, 75 Church St., New York. Next meeting, December 12-13, 1916, Atlanta, Ga.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—Tom Lehon, The Lehon Company, Chicago. Meetings with American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk, P. O. Box 7, St. Lambert (near Montreal), Que. Regular meetings, 2d Tuesday in month, except June, July and August, Windsor Hotel, Montreal, Que.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 176 Mansfield St., Montreal, Que. Regular meetings, 1st Thursday in October, November, December, February, March and April. Annual meeting, January, Montreal.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 Lawlor Ave., Chicago. Regular meetings, 2d Monday in month, except June, July and August, Hotel La Salle, Chicago.

CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York. Regular meetings, 2d Friday in January, May, September and November. Annual dinner, 2d Thursday in March, Hotel Statler, Buffalo, N. Y.

CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S ASSOCIATION.—W. R. McMunn, New York Central, Albany, N. Y.

CINCINNATI RAILWAY CLUB.—H. Boutet, Chief Interchange Inspector, Cin'ti Rys., 101 Carew Bldg., Cincinnati. Regular meetings, 2d Tuesday, February, May, September and November, Hotel Sinton, Cincinnati.

ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—Elmer K. Hiles, 2511 Oliver Bldg., Pittsburgh, Pa. Regular meetings, 1st and 3d Tuesday, Pittsburgh, Pa.

FREIGHT CLAIM ASSOCIATION.—Warren P. Taylor, Traffic Manager, R. F. & P., Richmond, Va. Annual convention, June 19, 1917, Banff, Alberta.

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—A. M. Hunter, 321 Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3d Thursday in month, Room 1856, Transportation Bldg., Chicago.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—A. L. Woodworth, C. H. & D., Lima, Ohio. Next annual meeting, August, 1917, Chicago.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—J. G. Crawford, C. B. & Q. R. R., 702 E. 51st St., Chicago. Next meeting, May 14-17, 1917, Hotel Sherman, Chicago.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1126 W. Broadway, Winona, Minn.

MAINTENANCE OF WAY AND MASTER PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.—F. W. Hager, Fort Worth & Denver City, Fort Worth, Tex.

MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 95 Liberty St., New York.

MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.—A. P. Dane, B. & M., Reading, Mass. Next annual meeting, September 11, 1917, Chicago.

MASTER CAR BUILDERS' ASSOCIATION.—J. W. Taylor, 1112 Karpen Bldg., Chicago. Next meeting, June, 1917.

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—C. W. Kelly, 349 Peoples Gas Bldg., Chicago. Next convention, March, 1917, Chicago.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meeting, 2d Tuesday in month, except June, July, August and September, Boston.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 95 Liberty St., New York. Regular meeting, 3d Friday in month, except June, July and August, 29 W. 39th St., New York.

NIAGARA FRONTIER CAR MEN'S ASSOCIATION.—E. N. Frankenberger, 623 Brisbane Bldg., Buffalo, N. Y. Meetings 3d Wednesday in month, New York Telephone Bldg., Buffalo, N. Y.

PEORIA ASSOCIATION OF RAILROAD OFFICERS.—F. C. Stewart, 410 Masonic Temple Bldg., Peoria, Ill. Regular meetings, 3d Thursday in month, Jefferson Hotel, Peoria.

RAILROAD CLUB OF KANSAS CITY.—Claude Manlove, 1008 Walnut St., Kansas City, Mo., Regular meetings, 3d Saturday in month, Kansas City.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 30 Church St., New York. Annual meeting, January 16, 1917, Waldorf-Astoria Hotel, New York.

RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Room 207, P. R. R. Sta., Pittsburgh, Pa. Regular meetings, 4th Friday in month, except June, July and August, Pittsburgh Commercial Club Rooms, Colonial-Annex Hotel, Pittsburgh.

RAILWAY DEVELOPMENT ASSOCIATION.—D. C. Welty, Commissioner of Agriculture, St. L., Iron Mt. & So., 1047 Railway Exchange Bldg., St. Louis. Next semi-annual meeting, November 9-10, 1916, La Salle Hotel, Chicago. Annual meeting, May 9-11, 1917, Louisville, Ky.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—J. Scribner, 1063 Monadnock Block, Chicago. Meetings with Association of Railway Electrical Engineers.

RAILWAY FIRE PROTECTION ASSOCIATION.—C. B. Edwards, Office of the President's Assistant, Seaboard Air Line, Norfolk, Va.

RAILWAY REAL ESTATE ASSOCIATION.—R. H. Morrison, Assistant Engineer, C. & O., Richmond, Va. Next convention, October, 1917, Duluth, Minn.

RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, Myers Bldg., Bethlehem, Pa. Next annual convention, September, 1917, Atlantic City, N. J.

RAILWAY STOREKEEPERS' ASSOCIATION.—J. P. Murphy, N. Y. C. R. R., Box C, Collinwood, Ohio.

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 2136 Oliver Bldg., Pittsburgh, Pa. Meetings with Master Car Builders' and Master Mechanics' Associations.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, 50 Church St., New York. Meetings with Association of Railway Telegraph Superintendents.

RICHMOND RAILROAD CLUB.—F O. Robinson, C. & O., Richmond, Va. Regular meetings. 2d Monday in month, except June, July and August.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—P. J. McAndrews, C. & N. W., Sterling, Ill. Next annual convention, September 18-21, 1917, Chicago.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August, St. Louis.

SALT LAKE TRANSPORTATION CLUB.—R. E. Rowland, David Keith Bldg., Salt Lake City, Utah. Regular meetings, 1st Saturday of each month, Salt Lake City.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmunds, 3868 Park Ave., New York. Meetings with annual convention Railway Signal Association.

SOCIETY OF RAILWAY FINANCIAL OFFICERS.—L. W. Cox, N. & W., Philadelphia, Pa.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—E. W. Sandwich, A. & W. P. R. R., Atlanta, Ga.

SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grant Bldg., Atlanta, Ga. Regular meetings, 3d Thursday, January, March, May, July, September, November, 10 a. m., Piedmont Hotel, Atlanta.

TOLEDO TRANSPORTATION CLUB.—Harry S. Fox, Toledo, Ohio. Regular meetings, 1st Saturday in month, Boody House, Toledo.

TRACK SUPPLY ASSOCIATION.—W. C. Kidd, Ramapo Iron Works, Hillburn, N. Y. Meetings with Roadmasters' and Maintenance of Way Association.

TRAFFIC CLUB OF CHICAGO.—W. H. Wharton, La Salle Hotel, Chicago.

TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 291 Broadway, New York. Regular meetings, last Tuesday in month, except June, July and August, Waldorf-Astoria Hotel, New York.

TRAFFIC CLUB OF PITTSBURGH.—D. L. Wells, Gen'l Agt., Erie R. R., 1924 Oliver Bldg., Pittsburgh, Pa. Meetings, bi-monthly, Pittsburgh.

TRAIN DESPATCHERS' ASSOCIATION OF AMERICA.—J. F. Mackie, 7122 Stewart Ave., Chicago. Next meeting, June 19, 1917, Fresno, Cal.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, N. Y. C. R. R., Cleveland, Ohio.

WESTERN ASSOCIATION OF SHORT LINE RAILROADS.—Clarence M. Oddie, Mills Bldg., San Francisco. Annual meeting, November 15, 1916, Brown Palace Hotel, Denver, Colo.

WESTERN CANADA RAILWAY CLUB.—L. Kon, Immigration Agent, Grand Trunk Pacific, Winnipeg, Man. Regular meetings, 2d Monday, except June, July and August, Winnipeg.

WESTERN RAILWAY CLUB.—J. W. Taylor, 1112 Karpen Bldg., Chicago. Regular meetings, 3d Monday in month, except June, July and August, Hotel Sherman, Chicago.

Traffic News

A daily freight boat is now running between Chicago and Joliet, Ill., and Lockport. The venture is backed by the River & Canal Transit Company, Chicago. The route taken by the boat is through the Chicago river and the drainage canal. The Chicago terminal is at the foot of Orleans street.

The attorney general of Missouri has asked the appointment of a commission to take testimony in a test case of the state of Missouri against the Chicago, Burlington & Quincy, involving refunds by Missouri railroads of excess passenger fares collected while the legality of the state two cent fare law was being contested.

A recommendation of the Western Passenger Association that homeseekers' rates for 1916 be continued in 1917 was met with objection by some roads. The general basis of the 1916 rates is a charge of one and one-half fares plus $2 for a round trip between all points, with stop-overs at all stations. Tickets are sold the first and third Tuesdays of every month.

The Transportation Club of Indianapolis held a hallowe'en dinner on October 31, in honor of the Louisville Transportation Club, which made the trip to Indianapolis in a special car. Among those scheduled to speak were Joseph E. Bell, mayor of Indianapolis, and W. L. Park, vice-president of the Illinois Central, whose subject was "The Transportation Question."

The "Clarke Scale" applying to freight rates within the State of Nebraska was put into effect on October 26, following a decision of the Interstate Commerce Commission handed down last August. The "Clarke Scale" replaces the scale provided by Order No. 19 of the state railway commission and raises the freight rates from Missouri river to eastern Nebraska points, but reduces them to points in the central and western parts of the state. It puts all Missouri river shipping points on a parity with Omaha, where the distance is the same.

The Nebraska State Railway Commission has canceled its emergency order of October 4, requiring, in the face of the car shortage, that all railroads return to the delivering road cars received in switching. The action of the commission followed the filing of a formal notice by the Missouri Pacific that the order had been ignored, and an appeal taken to the state supreme court. As the appeal acted as a suspension of the order, so far as the Missouri Pacific is concerned, the commission took the ground that it would be an injustice to other roads to continue the order.

Proposed Advance in Demurrage Rates

On the recommendation of the Committee on Relations between Railroads of the American Railway Association, the railroads of the country have filed and are filing tariffs to take effect on December 1, providing for the following revision of demurrage rates: A demurrage charge of $2 for the first day after the expiration of free time, $3 for the second day, $4 for the third day and $5 for the fourth and each succeeding day; a change in National Car Demurrage Rule 9, average agreement, changing the time during which the debits on a car may be cancelled by credits to three days' instead of five days' detention and an abolition of the "weather rule" (Rule 8—Section A).

Advance in Demurrage in Kansas and Colorado

The Public Utilities Commission of Kansas has ordered an increase of demurrage charges to facilitate the moving of crops. Under the new rates announced 48 hours of free time will be allowed for unloading cars; a charge of $1 a day will be made for the next 48 hours, $2 a day for the next succeeding 48 hours, $3 a day for the next two days, $4 a day for the next two, and for all succeeding days a flat rate of $5 a day will be charged. Seventy-two hours of free time will be allowed on open cars (without drop bottoms) of 80,000 lb. or more capacity.

The Public Utilities Commission of Colorado has granted an increase in demurrage rates effective November 1. The order of the commission provides for a charge of $3 per day following the expiration of the free time period of 48 hours.

Commission and Court News

INTERSTATE COMMERCE COMMISSION

The Interstate Commerce Commission has suspended from November 1 until March 1, 1917, proposed increases in rates on cotton from Alexandria and other points in Louisiana to New Orleans for export.

The commission has allowed to go into effect tariffs filed by the Texas lines increasing rates in Texas in accordance with the Shreveport decision, but has suspended items in the tariff increasing rates on lignite, tanbark, cord wood and cattle.

The commission has suspended from November 1 to March 1, 1917, proposed increases in rates on soap, less than carloads, from Kansas City, Mo., and related points to Memphis, Tenn., Cairo, Ill., Evansville, Ind., and other river crossings, applicable on traffic destined to southeastern territory.

The Interstate Commerce Commission has postponed the effective date of its order in the case of the Business Men's League of St. Louis against the Atchison, Topeka & Santa Fe and others until further order. The commission had previously postponed the effective date of this order from October 16 to November 16.

The Commercial Club of Kansas City has filed an amended petition with the Interstate Commerce Commission charging discrimination against Kansas City in commodity rates to the Pacific coast terminals and intermediate points, in favor of points east of Kansas City. They ask for the same relation as to commodity rates that now prevails as to class rates.

The National Live Stock Exchange has filed a complaint with the Interstate Commerce Commission alleging that on account of the lack of uniformity in the manner and method of publishing rates, shippers of feeder cattle, hogs or sheep are frequently charged the same or a higher rate than for cattle, hogs and sheep for slaughter. The complaint asks for rates on feeders not exceeding 75 per cent of the rate on livestock for slaughter.

Cottonseed Products from Texas

Opinion by Commissioner Meyer:

Proposed increased rates on cottonseed cake, meal and hulls in carloads from points in Southern Texas to Kansas City, Mo., and points taking same rates, and points in the State of Kansas are found not justified. (41 I. C. C., 333.)

Industrial Railways

In the matter of divisions of joint rates for transportation of stone from points in Indiana to points in other States. Opinion by Commissioner Meyer:

The Bedford Stone Railway and the Bedford & Wallner Railroad, which are short lines of railroad in the Bedford stone district of Indiana, are found to be common carriers controlled by their principal patrons and divisions allowed them by their trunk line connections out of joint rates in excess of a reasonable switching charge of $3 per car for all traffic, are found unlawful.

Damage attributed by shippers of stone from Kentucky points to discrimination alleged in favor of shippers in the Bedford stone district through the divisions received by the originating carriers in that district, controlled by shippers there, is held not proved. (41 I. C. C., 321.)

Nashville Flour Transit Rules

Freight Bureau Chamber of Commerce, of Macon, Ga., v. Southern Railway et. al. Opinion by Commissioner Clements:

Tariffs of the defendant carriers, proposing to withdraw any quantity transit arrangements on self-rising flour produced by manufacturers at Nashville, Tenn., while continuing to accord the same to this commodity when produced by millers located at this and other points on their lines, found not to have been justified and required to be canceled.

The maintenance and participation in such arrangements as applied to manufacturers of this article at Nashville, while not affording same to manufacturers located at Macon, Ga., is found to result in unjust discrimination which is required to be removed. (41 I. C. C. 483.)

STATE COMMISSIONS

The Railroad Commission of Louisiana held a hearing on Thursday, November 2, to consider a proposed amendment to its car service and demurrage rules providing for an increase in the demurrage rate during October, November, December, January, February and March from $1 to $2 a day.

The announcement that the Wellsville & Buffalo would suspend operations because of insufficient earnings has disturbed some important shippers; Commissioner Hodson of the New York Public Service Commission, Second district, held a consultation with them at Buffalo, last week, with a view to seeing if some temporary extension of time could be made. At one town on the line, a contractor needs 300 car loads of material for improving highways, which must come over this road or not at all, and large quantities of milk are carried to Buffalo daily over the line. The owners of the road say that they have already sunk $40,000 in the operation of the road, and that appeals to concerns which originate large quantities of freight have failed to bring a satisfactory response.

COURT NEWS

The Supreme Court of the United States has refused to review decisions by district and circuit federal courts in California dismissing 16 suits contesting the title of the Southern Pacific to river front land at Sacramento, California, on which the railroad terminals are located. The California courts held that as the railroad had been in possession of the land for 50 years plaintiffs could not maintain suits in equity setting up adverse title.

Punitive Damages

The North Carolina Supreme Court holds that where a railroad's ticket agent assured a passenger that a through train would stop at the station of his destination, but the conductor required the passenger to alight before reaching that point and take a local train, and thus the passenger was put to inconvenience, the passenger has no right to punitive damages.—White v. Norfolk-Southern (N. Car.), 89 S. E., 788.

Station Agent's Authority

The North Dakota Supreme Court holds that a station agent, as such, without further authorization, has no power, express or implied, to bind his company by a contract to transport goods from places distant from such station and distant from his company's line; nor has he any authority to assume liability for acts of a preceding carrier.—Knapp v. Minneapolis, St. Paul & Sault Ste. Marie (N. Dak.), 159 N. W., 81.

Limitation of Liability

The Oklahoma Supreme Court holds that, as to interstate shipments, the common-law liability of the carrier for the safe carriage of property may be limited by special contract with the shipper, when the contract, being supported by a consideration, is reasonably and fairly entered into by the shipper, and does not attempt to cover losses caused by the negligence or misconduct of the carrier.—St. Louis & S. F. v. Okard (Okla.), 159 Pac., 344.

Passenger or Trespasser

A person who had paid less than full fare had ridden in a freight car with the consent of a brakeman and the conductor. On getting within 1,400 feet of a station in the night time the brakeman informed him that he could not be carried further, but must walk to the station and get a ticket. Following this direction the man was injured by a passing train. The Oklahoma Supreme Court holds that whether or not the person was a passenger or a trespasser was a question for the jury under proper instructions.—Rock Island v. Shadid (Okla.), 159 Pac., 913.

Railway Officers

Executive, Financial, Legal and Accounting

Thomas F. Brennan, general manager of the Buffalo, Rochester & Pittsburgh, at Rochester, N. Y., has been promoted to vice-president.

R. M. Scott, chief clerk to Vice-President A. J. Stone of the Erie at New York, has been promoted to assistant to Mr. Stone, succeeding John D. Cummin, promoted.

R. S. Hoxie, auditor of freight accounts for the St. Louis-San Francisco, at St. Louis, Mo., has been appointed auditor in full charge of accounts, with headquarters at the same point.

F. H. Hamilton, who was treasurer of the St. Louis & San Francisco, is now secretary and treasurer of its successor the St. Louis-San Francisco Railway with headquarters at St. Louis, Mo.

Hudson Campbell has been appointed acting auditor and acting treasurer of the Marietta, Columbus & Cleveland, with office at Marietta, Ohio, vice C. B. McCann, resigned to engage in other business.

T. A. Hamilton has been appointed special representative in the president's office of the St. Louis-San Francisco, with office at St. Louis, Mo. He will perform such special duties as will be assigned to him by the president. B. T. Wood becomes assistant to the president.

E. E. Calvin, president of the Union Pacific, with office at Omaha, Neb., has also been elected president of the St. Joseph & Grand Island, succeeding G. G. Lacy, who becomes in turn vice-president and treasurer. Alexander Millar, of New York, was elected secretary, and W. N. Purvis, now secretary, becomes assistant secretary.

A. Douglas, chief accounting officer of the St. Louis-San Francisco, with office at St. Louis, Mo., has been appointed consulting auditor, a newly created position, effective November 1, with the same headquarters. He will be in charge of valuation accounting matters and will perform such other duties as may be assigned to him by the president.

A. J. Pharr, assistant controller of the Louisville & Nashville at Louisville, Ky., has been appointed controller, succeeding Charles Haydon, retired from active service. R. E. Ryan, cashier at Louisville, has been appointed assistant treasurer, with office at Louisville, vice G. W. Proctor, retired from active service, and O. C. Leason succeeds Mr. Ryan.

Maurice Dailey, receiver and general manager of the Muscatine North & South, with office at Muscatine, Iowa, has been elected president and general manager, and the name of the road has been changed to Muscatine, Burlington & Southern. Mr. Dailey was born on March 7, 1865, at Galesburg, Ill. In October, 1881, he entered railway service with the Chicago, Burlington & Quincy as a machinist apprentice. In 1883 he was made a locomotive fireman, and in 1886 became a locomotive engineer with the same company. From May, 1888, to March, 1911, he was with the Chicago Great Western as a locomotive engineer, roundhouse foreman, traveling engineer, trainmaster, master mechanic, superintendent of terminals and division superintendent. From August, 1912, to July, 1913, he was general superintendent of the Missouri, Oklahoma & Gulf, with office at Denison, Tex., and then was appointed general manager of the Muscatine North & South, at Muscatine, Iowa. In December, 1914, he was appointed receiver of the same road. His election as president and general manager became effective on November 1.

Operating

Harry D. Earl has been appointed general superintendent of the Midland Valley with office at Muskogee, Okla., succeeding W. E. Green.

W. A. Nash, despatcher on the Denver & Rio Grande at Salt Lake City, Utah, has been appointed chief despatcher, succeeding W. L. Watkins, deceased.

E. R. Allen, formerly superintendent of terminals of the Erie at Jersey City, N. J., has been appointed superintendent of terminals at Akron, Ohio.

Edgar F. Robinson, chief engineer of the Buffalo, Rochester & Pittsburgh, at Rochester, N. Y., has been appointed general manager, succeeding T. F. Brennan, promoted.

Andrew B. Moore, chief clerk to the general manager of the Western Maryland at Hagerstown, Md., has been appointed trainmaster on the Eastern division, with headquarters at Hagerstown.

George L. Griggs, division superintendent of the Chicago, Burlington & Quincy, at Wymore, Neb., has been appointed division superintendent at Omaha, Neb. He was succeeded by F. R. Mullin, division superintendent at Omaha.

R. L. Barrett, trainmaster of the Pittsburg, Shawmut & Northern, has been appointed superintendent of car service, with office at St. Marys, Pa., and T. G. Gorman has been appointed trainmaster, with office at St. Mary's Junction, Pa., vice Mr. Barrett.

P. J. Flynn, manager of terminals of the Grand Trunk Pacific and the Canadian Northern at Winnipeg, Man., has been appointed superintendent of the Buffalo division of the Lehigh Valley with headquarters at Buffalo, N. Y., succeeding C. T. O'Neal, promoted.

J. H. Boyle, superintendent of the Canadian Pacific at Farnam, Que., has been appointed general superintendent of the Eastern division, replacing Allan Purvis, who has been appointed general superintendent of the Ontario division, replacing J. T. Arundel during his absence on account of illness and W. E. McGill, assistant superintendent at Toronto, Ont., has been appointed assistant superintendent, with headquarters at Sudbury, Ont., vice R. W. Scott, transferred.

Charles T. O'Neal, who has been appointed general superintendent of the Lehigh Valley with headquarters at South Bethlehem, Pa., as has already been announced in these columns, was born on December 29, 1873, at Brandywine Springs, Del., and was educated in the common schools. He began railway work on May 1, 1890, as clerk and timekeeper in the trainmaster's office of the Philadelphia & Reading. From 1891 to 1892 he was clerk to the superintendent of transportation of the same road, and then for about one year was a clerk to the general agent of the California Fruit Express at Chicago. From 1893 to 1897 he served as stenographer in the general superintendent's office of the Lehigh Valley and subsequently as clerk, accountant and chief clerk in the general manager's office. In 1904 he was appointed trainmaster of the Pennsylvania division and in 1907 became trainmaster of the New Jersey & Lehigh division of the same road. In 1908 he was promoted to superintendent of the New York division at Jersey City, N. J. The following year he was made superintendent of the Buffalo division with headquarters at Buffalo, N. Y., and in 1914 his jurisdiction was extended over the Lake Lines of the Lehigh Valley which position he held at the time of his recent appointment as general superintendent of the same road, as above noted.

C. T. O'Neal

James E. Turk, general superintendent of the Philadelphia & Reading at Reading, Pa., has been appointed assistant to the general manager, and W. H. Keffer, superintendent of the Reading division at Reading, has been appointed general superintendent, with office at Reading. F. M. Falck, superintendent of the Atlantic City Railroad at Camden, N. J., has been appointed acting superintendent, Reading division of the Philadelphia & Reading with office at Reading, Pa., vice Mr. Keffer.

Ross S. Marshall, whose appointment as assistant general manager of the Seaboard Air Line, with headquarters at Norfolk, Va., has already been announced in these columns, was born March 15, 1880, at Rock Island, Ill. He was educated in the high school at Anaconda, Mont., and at the age of 16 entered the service of the Great Northern, remaining with that road until 1902, at which time he was chief clerk to superintendent. From October, 1902, to September, 1905, he was with the Chicago, Rock Island & Pacific as division accountant and chief clerk to the division engineer. He then served on the Panama Railroad, for two years as chief clerk to the general manager and local auditor, at Colon, Panama, and from September, 1907, to November, 1910, as statistician in the general superintendent's office of the New York, New Haven & Hartford. He entered the service of the Minneapolis & St. Louis in November, 1910, serving first as assistant to vice-president and later as superintendent. On July 1, 1914, he was appointed superintendent of the Seaboard Air Line at Richmond, Va., and now becomes assistant general manager of the same road as above noted.

William H. Keffer, who has been appointed general superintendent of the Philadelphia & Reading, with headquarters at Reading, Pa., was born on June 16, 1863, at Frackville, Pa. He began railway work on April 1, 1880, as a telegraph operator on the Philadelphia & Reading. In 1882 he became coal clerk at the Frackville scale office, and in 1888 was appointed shipping agent at the same place. He was appointed train despatcher in 1889 at Mahanoy Plane, and later in the same year became car agent in connection with the office of the transportation master. In 1892 he was appointed traveling despatcher on the Shamokin division. Three years later he was appointed assistant trainmaster at Mahanoy Plane, and in 1897 trainmaster on the Shamokin division at Tamaqua. On October 19, 1904, he was appointed assistant to general superintendent at Reading; in February of the following year he was appointed assistant superintendent in charge of transportation, Reading division, at Reading, and in October, 1905, was made superintendent of the same division, which position he held at the time of his recent appointment as general superintendent of the same road, as above noted. Mr. Keffer's entire service has been with the Philadelphia & Reading.

W. H. Keffer

Frank J. Moser, superintendent of the Mahoning division of the Erie at Youngstown, Ohio, has been appointed superintendent of the New York division and branches with headquarters at Jersey City, N. J., succeeding Alva C. Elston who has been elected general superintendent of the New York, Susquehanna & Western and the Wilkesbarre & Eastern. Robert E. Woodruff, superintendent of the Kent division of the Erie at Marion, Ohio, has been appointed superintendent of the Mahoning division succeeding Mr. Moser. William J. English, superintendent of the Susquehanna and Tioga divisions at Hornell, N. Y., succeeds Mr. Woodruff. Herman J. Klein, assistant superintendent at Youngstown, has been appointed superintendent of the Meadville division with headquarters at Meadville, Pa. Carl Bucholtz, assistant superintendent of the Kent division at Kent, Ohio, has been appointed assistant superintendent of the Mahoning division; Harry R. Adams, trainmaster at Huntington, Ind., has been appointed assistant superintendent of the Kent division. Samuel E. Ferguson, superintendent of the Meadville division at Meadville, Pa., has been appointed assistant to the general superintendent at Youngstown; Charles P. Eckels, superintendent of the Rochester division at Rochester, N. Y., has been appointed superintendent of the Susquehanna division, and John D. Cummin, assistant to vice-president at New York, has been appointed superintendent of the Rochester division.

Traffic

W. B. Wells has been appointed general freight agent of the St. Louis, San Francisco & Texas, with office at Ft. Worth, Tex., succeeding W. C. Preston, who becomes general agent at Dallas, Tex., at his own request.

Engineering and Rolling Stock

William J. Tracy has been appointed superintendent of the system shops of the Lehigh Valley at Sayre, Pa., succeeding J. C. Seeger, resigned.

D. A. Shope, general foreman of bridges and buildings on the Atchison, Topeka & Santa Fe, Coast Lines, with headquarters at Fresno, Cal., has resigned to go into other business.

Charles A. Lemmon, chief engineer of the Butte, Anaconda & Pacific, has resigned to become assistant to the general manager of the Anaconda Copper Mining Company, Anaconda, Mont.

A. Leckie, division engineer of the Arkansas Western, has been appointed division engineer of the Kansas City Southern, with office at Kansas City, Mo., succeeding E. M. Basye, assigned to other duties.

T. J. Raycroft, assistant master mechanic of the Cumberland division of the Baltimore & Ohio, has been promoted to master mechanic of the Wheeling division, with headquarters at Wheeling, W. Va., succeeding James Bleasdale, resigned to accept service elsewhere.

E. I. Rogers, assistant roadmaster of the Iowa division of the Illinois Central, has been appointed roadmaster of that division, with headquarters at Fort Dodge, Iowa, effective October 28. He succeeds H. Gilleas, retired on a pension after 52 years of service with the road.

F. A. Butler, master mechanic of the Boston division of the Boston & Albany at Beacon Park, Allston, Mass., has been appointed master mechanic of the Albany division, with office at West Springfield, succeeding J. B. Canfield, assigned to other duties, and F. A. Hussey, road foreman of engines, at Allston, has been appointed master mechanic of the Boston division, with headquarters at Beacon Park, Allston, succeeding Mr. Butler.

Harry Hardin Orr, the announcement of whose appointment as signal engineer of the Chicago & Eastern Illinois was recently made, was born September, 1885, at Ocala, Fla. He received his early education in this community and later graduated from high school in Louisville, Ky. He then took up an engineering course at Rose Polytechnic Institute, which he completed in 1907. In June of the same year he took employment with the Chicago & Eastern Illinois, later being made signal inspector and chief signal inspector in turn. His appointment as signal engineer became effective Oct. 1.

J. S. McBride, recently promoted from valuation engineer to principal assistant engineer of the Chicago & Eastern Illinois, with office at Chicago, Ill., was born at Louisville, Ky., and graduated from the Rose Polytechnic Institute, in civil engineering. In 1905, he entered railway service with the Chicago & Eastern Illinois as instrument man on construction and maintenance, since which time he has been continuously in the employ of that road. In 1908, he was appointed assistant engineer of the Illinois division at Salem, Ill., and in 1914, was promoted to valuation engineer at Chicago, Ill. As principal assistant engineer, he will continue to have charge of the federal valuation work in addition to taking care of his new duties.

Purchasing

P. J. Shea has been appointed general storekeeper of the Boston & Albany, with headquarters at West Springfield, Mass., succeeding E. B. Rockwood, resigned.

OBITUARY

Charles L. McIntyre, right of way and real estate agent of the Pittsburgh & Shawmut, died on October 30 at Freeport, Pa.

L. L. Scherer, general claim agent of the Chesapeake & Ohio at Richmond, Va., died in a hospital in that city on October 21. Mr. Scherer was born on February 27, 1872, at Columbus, Texas, and entered the services of the Chesapeake & Ohio in

1901 in the special agent's department at Richmond, and since 1910 was general claim agent of that road.

Frederick W. Bright, superintendent of motive power, Armour & Company, died at his home in Chicago, Ill., Sunday, October 29. He was born in Barry, Ill., where he received his early education. On attaining young manhood he entered the service of Armour & Company in the mechanical department as an apprentice, being sent to the Kansas City plant, where he remained for 26 years, and during which time he was promoted in turn to every position in this department. At the time of his death he was in charge of all the mechanical and engineering work of this company.

Theodore Newel Ely

Theodore N. Ely, formerly chief of motive power of the Pennsylvania Railroad System, including the lines both east and west of Pittsburgh and Erie, who retired from railway work on July 1, 1911, after 43 years of service, died on October 28, at his home in Bryn Mawr, Pa. He was born June 23, 1846, at Watertown, N. Y., and was graduated from the Rensselaer Polytechnic Institute in 1866, as a civil engineer. Immediately after graduation he was engaged as an engineer at the old Fort Pitt foundry at Pittsburgh, experimenting with projectiles. A year later, 1867, he was at work in mining operations in the Monongahela river region. In 1868 he entered upon his long career in the service of the Pennsylvania Railroad as an engineer in the roadway department on the Pittsburgh, Fort Wayne & Chicago at Pittsburgh, from which he was soon sent as assistant engineer to the Philadelphia & Erie division of the Pennsylvania. In 1869 and 1870 he was superintendent of the Middle division of the Philadelphia & Erie, and was then promoted to assistant general superintendent, a position which he held until 1873. From 1873 to 1874 he was superintendent of motive power of the same division. In 1874 he was made superintendent of motive power of the Pennsylvania Railroad division, and in 1882 became general superintendent of motive power of the Pennsylvania lines east of Pittsburgh and Erie. From March, 1893, to the date of his retirement he was chief of motive power, Pennsylvania Lines east and west of Pittsburgh and Erie.

Theodore N. Ely

Mr. Ely was a member of the American Society of Civil Engineers, the Institution of Civil Engineers (England), the American Society of Mechanical Engineers, the American Institute of Mining Engineers, the Franklin Institute, the American Philosophical Society, the American Association for the Advancement of Science, and other technical and scientific associations. He was a lover and patron of art and had a wide circle of friends in that field. He was vice-president of the American Academy in Rome, and an honorary member of the American Institute of Architects. He was president of the Eastern Railroad Association for several years, and also a member of the executive committee of the American Railway Association and of the permanent commission of the International Railway Congress; also of the boards of trustees of the Drexel Institute of Art, Science, and Industry, and of the Philadelphia Commercial Museum. The honorary degree of Master of Arts was conferred upon Mr. Ely, in 1897, by Yale University, and that of Doctor of Science by Hamilton College in 1904.

The great work of Mr. Ely's life was performed in the mechanical department of the Pennsylvania Railroad, at the Altoona (Pa.) shops, where he inaugurated the department for testing materials, and established the system of purchasing supplies on rigid specifications. This was a new field at that time in railroad work and Mr. Ely encountered much opposition, but he acted on the courage of his convictions, and lived to see the system of specifications, which he inaugurated, adopted by many other railroads. As a result of his work at Altoona, the plan of purchasing railroad supplies on specifications has now become general, to the benefit of both buyer and seller.

Mr. Ely's character as an engineer was well summed up in a notice printed in the *Railway Age Gazette* on July 7, 1911, on his retirement from active service, from which we take the following:

"Mr. Ely was a bold originator, and yet possessed of a boldness so tempered with caution and certainty that his mistakes were few indeed as compared with his achievements. He never hesitated to launch out into the untried, yet he was never carried away by impulse, but guided his craft with cool calculations. It was Mr. Ely who took the first step, alone, against the protests of many by whom he was surrounded, that has led to the development of the large locomotives of today. While builders and engineers considered that the end had come, that the locomotive had reached the limit of its power, because of the restrictions current construction put upon the size of the firebox; Mr. Ely lifted his whole boiler into the air, set his foundation ring on top of the frames, widened his firebox and gave the machine a new lease of life. Many and dire were the predictions made as to the instability of the new design. But we all know the result. It did not upset, but ran with unexampled smoothness; and, with construction revolutionized, the whole country followed in his wake. This is but a single example of his work. Mr. Ely's success was so based on sound discrimination and careful consideration, that, to a wonderful degree, he gained and held the confidence of all who came in contact with him. As one of his associates expressed it, he was the balance wheel of the mechanical organization of the road; and to his influence the wonderful team work of the various departments was largely due. No man could have gained the reputation for clear judgment than Mr. Ely possesses, among all who know him, who has not merited it; and the position which he holds in the opinion of his associates speaks volumes for the character of the man and his work."

Charles Wilcox Hotchkiss, chairman of the board of directors of the Virginian Railway and president of the Chicago Tunnel Company of Chicago, Ill., died on Saturday, October 28, at Battle Creek, Mich., from organic heart trouble. He was born in Unadilla Forks, N. Y., June 19, 1863. After a preliminary education in the public schools of this neighborhood he entered the West Winfield Academy at West Winfield, N. Y., graduating in 1881. He immediately took employment with the New York, West Shore & Buffalo at Newburgh, N. Y., as rodman. From August, 1886, to May, 1896, he was assistant engineer on the Michigan Central, and from May, 1896, to January, 1899, he was chief engineer on the Chicago Junction. In August, 1899, he was appointed chief engineer of the Chicago Transfer & Clearing Company, and in June, 1900, he was elected president of the Indiana Harbor Railroad and built the Indiana Harbor Belt and the Chicago, Indiana & Southern. In October, 1905, when the New York Central took over these lines, he became also general manager of the Indiana Harbor Belt. In April, 1906, he was also appointed general manager of the Chicago, Indiana & Southern. In May, 1912, he was elected president of the Chicago Tunnel Company, Chicago, Ill. In February, 1915, he was elected also to the chairmanship of the Virginian Railway's executive committee, becoming at the same time president of the Rail Joint Company of America and president of the Staten Island Railroad.

C. W. Hotchkiss

Equipment and Supplies

LOCOMOTIVES

THE UNION PACIFIC has issued a new inquiry for 15 Santa Fe type locomotives.

THE DULUTH, MISSABE & NORTHERN is inquiring for 6 eight-wheel switching locomotives.

THE MIDLAND VALLEY has ordered 2 Mikado locomotives from the Baldwin Locomotive Works.

THE SOUTHERN RAILWAY is in the market for 12 Mallet, 8 Mountain and 25 Santa Fe locomotives.

THE CHICAGO, BURLINGTON & QUINCY is inquiring for 20 Mikado and 10 Santa Fe type locomotives.

THE ITALIAN STATE RAILWAYS have ordered 40 Consolidation locomotives from the American Locomotive Company.

THE CENTRAL OF NEW JERSEY has ordered 5 eight-wheel switching locomotives from the American Locomotive Company.

THE LOUISVILLE & NASHVILLE is building 8 Mikado locomotives in its own shops and will soon start construction of 8 more.

THE NORFOLK & PORTSMOUTH BELT LINE has ordered one six-wheel switching locomotive from the Baldwin Locomotive Works.

THE STANDARD OIL COMPANY, Baltimore, Md., has ordered one four-wheel switching locomotive from the Baldwin Locomotive Works.

THE DELAWARE, LACKAWANNA & WESTERN, reported in the *Railway Age Gazette* of September 22 as inquiring for 5 Pacific type locomotives, has ordered these locomotives from the American Locomotive Company.

THE DETROIT TERMINAL has ordered 3 superheater six-wheel switching locomotives from the American Locomotive Company. These locomotives will have 21 by 28 in. cylinders, 57 in. driving wheels and a total weight in working order of 173,000 lb.

THE COPPER RIVER & NORTHWESTERN has ordered one superheater Mikado type locomotive from the American Locomotive Company. This locomotive will have 20 by 28 in. cylinders, 48 in. driving wheels and a total weight in working order of 195,000 lb.

THE ERIE has ordered 15 Santa Fe type locomotives from the American Locomotive Company. These locomotives will have 31 by 32 in. cylinders, 63 in. driving wheels, a total weight in working order of 404,000 lb. and will be equipped with superheaters.

THE BORNEO COMPANY, LTD., has ordered 2 superheater six-wheel switching locomotives from the American Locomotive Company. These locomotives will have 10 by 16 in. cylinders, 30½ in. driving wheels and a total weight in working order of 36,000 lb.

THE HOCKING VALLEY has ordered 5 superheater Mallet (2-6-6-2) type locomotives from the American Locomotive Company. These locomotives will have 22 and 35 by 32 in. cylinders, 56¼ in. driving wheels and a total weight in working order of 435,000 lb.

THE RUSSIAN GOVERNMENT is expected, momentarily, to close definite contracts for 400 Decapod locomotives. It is understood that Canadian builders will be given from 40 to 60 of these engines and that the remainder will be divided between the American Locomotive Company and the Baldwin Locomotive Works.

THE BRITISH GOVERNMENT recently increased to 395 the order for 45 narrow gage 4-6-0 type tank locomotives given to the Baldwin Locomotive Works as reported in the *Railway Age Gazette* of August 25. It is also understood that the British War Office will increase the order recently given to the American Locomotive Company for 100 18-ton 2-6-2 type tank locomotives by 100 or 150 engines.

THE CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA, reported in the *Railway Age Gazette* of October 20 as being in the market for locomotives, has ordered 9 six-wheel switching locomotives from the American Locomotive Company. These locomotives will have 21 by 28 in. cylinders, 51 in. driving wheels and a total weight in working order of 140,000 lb. This road remains in the market for a number of Mikado locomotives.

THE CHICAGO & NORTH WESTERN, reported in the *Railway Age Gazette* of October 13 as being in the market for 77 locomotives, has ordered 25 Mikado, 12 Pacific and 40 six-wheel switching locomotives from the American Locomotive Company. The 25 Mikado locomotives will have 27 by 32 in. cylinders, 61 in. driving wheels and a total weight in working order of 302,000 lb. The 12 Pacific type locomotives will have 25 by 28 in. cylinders, 75 in. driving wheels and a total weight in working order of 264,000 lb. Of the 40 six-wheel switching locomotives, 25 will have 18 by 24 in. cylinders, 51 in. driving wheels and a total weight in working order of 140,000 lb. The other 15 six-wheel switching locomotives will have 21 by 28 in. cylinders, 51 in. driving wheels, and a total weight in working order of 171,000 lb. All 77 locomotives will be equipped with superheaters.

FREIGHT CARS

THE PENN TANK CAR COMPANY is in the market for 150 cars.

ANDERSON, MAYER & CO. are in the market for 75 cars for China.

THE STANDARD CAR EQUIPMENT COMPANY is inquiring for 208 tank cars.

THE OHIO CITIES' GAS COMPANY is reported in the market for 200 cars.

THE ERIE has ordered 1,000 box cars from the Standard Steel Car Company.

DAVIS & LLOYD are reported in the market for 100 gondola and 400 flat cars for France.

THE ATLANTIC COAST LINE has ordered 1,200 box and 500 flat cars from the Barney & Smith Car Company.

THE BALTIMORE & OHIO has ordered 2,000 box cars from the Mount Vernon Car Manufacturing Company.

THE ANACONDA COPPER MINING COMPANY has ordered 20 flat and 10 gondola cars from the Pressed Steel Car Company.

THE CHICAGO, BURLINGTON & QUINCY has ordered 500 gondola and 1,000 automobile cars from the Western Steel Car & Foundry Company.

THE SOUTHERN RAILWAY is reported in the market for 500 to 1,500 box cars and has ordered 1,313 gondola cars from the Pressed Steel Car Company.

THE NEW YORK CENTRAL has ordered 1,000 box cars from the Barney & Smith Car Company and has placed orders for 4,000 cars with other companies.

THE CHICAGO & NORTH WESTERN has ordered 500 stock cars from the Barney & Smith Car Company. This makes a total of 2,500 freight cars ordered by this company in the last few weeks.

THE LOUISVILLE & NASHVILLE was incorrectly reported in last week's issue as having ordered 1,500 underframes from the Pressed Steel Car Company. It ordered 750 underframes for box cars, which it will build in its own shops, from the Pressed Steel Car Company, and 750 underframes, for gondola cars which it will build in its own shops, from the Mount Vernon Car Manufacturing Company. It has also ordered 2,000 cars from the Pressed Steel Car Company in addition to 1,000 gondola and 500 hopper cars previously reported.

PASSENGER CARS

THE CENTRAL OF GEORGIA is in the market for 14 sleeping cars. These are in addition to the 6 sleeping cars which it recently ordered form the Pullman Company.

THE NEW YORK CENTRAL has ordered 50 coaches from the Pressed Steel Car Company, 25 coaches from the Barney & Smith Car Company and 25 express and baggage cars from the Pullman Company.

THE BALTIMORE & OHIO, reported in the *Railway Age Gazette* of October 13 as being in the market for 100 passenger train cars, has ordered 75 coaches and 25 combination baggage and mail cars from the Pullman Company.

Supply Trade News

The Kirby Lumber Company, Houston, Tex., announces that after November 1 its sales will be handled exclusively by the Kirby-Bonner Lumber Company.

The Irving-Pitt Manufacturing Company, Kansas City, Mo., maker of books and forms, has moved its New York office to new and larger quarters at 428 Broadway.

At the recent meeting of the board of directors of the U. S. Light & Heat Corporation, Niagara Falls, N. Y., C. L. Lane, who has been secretary of the company, was elected vice-president.

Exum M. Haas, western editorial representative of the Electric Railway Journal, has been appointed manager of sales of the International Steel Tie Company, Cleveland, Ohio, effective November 1. He graduated in civil engineering from Purdue University in 1905. Previous to his college course, and during vacations he served on the engineering corps of the Baltimore & Ohio and the Chesapeake & Ohio. After graduation he was made resident engineer for the Chicago & Eastern Illinois in charge of the construction of a large freight yard at Dolton, Ill. In 1906 he was appointed assistant engineer maintenance of way of the Illinois Traction System, where he helped organize a maintenance of way department. In 1907 he was appointed locating and construction engineer in charge of the building of extensions to that system. In 1909, when work on the track extensions had practically ceased, his title was changed to superintendent of bridges and buildings, and while in this capacity most of this company's standard way stations and sub-stations, as well as the terminal buildings in St. Louis, Mo., were built. In November, 1912, he joined the editorial staff of the Electric Railway Journal, and has since served as western editorial representative.

E. M. Haas

J. T. Griffin, storekeeper of the South African Railways and Harbors, at Williston, Cape Province, South Africa, writes that he would like to receive railway supply catalogues dealing particularly with maintenance of way work.

Herbert W. Dow, assistant sales engineer of the Nordberg Manufacturing Company, Milwaukee, has been appointed sales manager succeeding Fred W. O'Neil who resigned to accept an executive position with the Ingersoll-Rand Company, New York.

Jacobs-Shupert fireboxes will be applied to all of the 10 Mallet type locomotives recently ordered by the Western Maryland from the Lima Locomotive Works. This is a repeat order, the Jacobs-Shupert U. S. Firebox Company, New York, having supplied its fire boxes for 5 of the 15 Mallet type locomotives ordered by the Western Maryland a year ago last June.

Judge Hazel, sitting in the district court for the western district of New York, on October 17 handed down a decision in the case of the Safety Car Heating & Lighting Company, vs. U. S. Light & Heat Corporation, in which he held that the latter's car lighting equipment did not infringe the Creveling patent owned by the plaintiff, but was manufactured under the McElroy patents owned by the United States Company. He also dismissed a counter claim declaring that the Safety Type F system of the Safety Company was an infringement of the McElroy patents.

D. P. Lameroux, whose appointment as general manager of the Pratt & Letchworth Company, Ltd., Brantford, Ont., has already been announced in these columns was born in Mayville, Wis., December 12, 1873. He received his education at the University of Wisconsin, where he took a course in civil engineering as a member in the class of 1895. After leaving college he spent two years in the maintenance department of the Milwaukee Northern Railway, and the California Oregon Railway, and for the following three years was private secretary to the commissioner of the general land office at Washington, D. C. In 1900, he became associated with the Beaver Dam Malleable Iron Company and worked his way up through that organization until in 1913 when he left to take up another position, he was the company's general manager. During this period, also, he was on the executive legislative committee of the Wisconsin Manufacturers' Association, and for three years of this time, was also regent of the University of Wisconsin. In 1913 he entered the railway supply business in Chicago, and was connected with the Cleveland Steel Company and the Trumbull Steel Company. In his new position he will act as general manager of the various malleable plants of the Canadian Car & Foundry Company, Limited, including the Pratt & Letchworth Company's plant at Brantford and the Malleable iron plant at Amherst.

D. P. Lameroux

Steel Corporation Earnings Again Break Record

Directors of United States Steel Corporation at their meeting last Tuesday, declared the regular dividend of 1¼ per cent on the common and 1 per cent extra, the same as three months ago. The regular quarterly dividend of 1¾ per cent on the preferred was also declared.

Net earnings of $85,817,067 for the third quarter established a new high record, comparing with $81,126,048, the previous high record, reached in the second quarter of the current year.

TRADE PUBLICATIONS

Electric Signal Appliances, Direct Current.—The General Railway Signal Company, Rochester, N. Y., has issued a loose leaf catalogue of 1,100 pages, bearing this title, and marked Volume 1. It is in a very substantial binder, 7½ in. x 9½ in., and is a model of the bookmaker's art. It supersedes the company's former catalogue (in light blue binder) containing this class of information. The nature of the contents of the volume is indicated by the title. A separate catalogue of alternating current appliances is to be issued later. The present volume is divided into five sections and there are additional tab indexes for three others. That is to say, the book may be called an eight-lever frame with three spare spaces. Leaves can be taken out and new leaves put in with the utmost facility. The sections are divided into from 10 to 21 parts each, with large size thumb indexes for each part, making access to any detail extremely easy. The book is embellished with a number of full-page half tone photographic out-door views of interlocking and block signals, most of them without titles. The editing of the material in the catalogue bears every evidence of being of the highest quality—which means a prodigious amount of work and patience on the part of careful specialists. In those items where it is necessary or desirable, references are given to the number of the drawing, a feature which must be a great convenience in checking invoices; and in descriptive matter concerning standard parts such as pipe, screws, bolts and pins, quick reading is facilitated by the addition of the dimensions of the pipes, screws, etc.

Railway Construction

ATCHISON, TOPEKA & SANTA FE.—This company intends soon to construct a new line from Caney, Kan., through Pawhuski, Okla., to Ralston, Okla., a distance of about 60 miles. Surveys are being made, but no actual construction will be undertaken until the details in connection with the securing of the right of way have been completed.

CHARLESTON & SUMMERVILLE INTERURBAN.—Right of way is being secured, it is said, for a proposed line to be built between Charleston, S. C., and Summerville, about 22 miles. J. L. David, president.

CHATTAHOOCHEE VALLEY.—Work on the extension which this company is building from McCullough, Ga., to Bleecker, Ala., and a connection with the Central of Georgia, is nearing completion. The Nichols Contracting Company, Atlanta, are the contractors. (April 21, p. 926.)

KANSAS CITY, OZARK & SOUTHERN.—This company plans to begin work soon on an extension of its line from Ava, Mo., in a southerly direction. The idea is to tap the Ozark timber lands, which contain thousands of acres of timber suitable for railway ties now unavailable on account of the lack of transportation facilities.

KELLYS CREEK RAILROAD.—Incorporated in West Virginia, it is said, with $10,000 capital, to build a 7-mile line from Cedar Grove, W. Va., up Kellys creek. It is reported that Cleveland, Ohio, capitalists are back of the project.

KEWANEE & EASTERN.—It is proposed to build a new line from a point in Rock Island County, Ill., just opposite Muscatine, Iowa, through Kewanee to a point near Streator, Ill., a distance of about 120 miles. Application for a franchise has been filed with the Illinois Public Utilities Commission and it is expected to be favorably acted upon at once.

MISSISSIPPI VALLEY RAILROAD & NAVIGATION CO.—This is the name of a new company recently incorporated in Illinois to construct a line from Danville, Ill., to Metropolis, on the Ohio river. The company will also operate a barge line across the Ohio river to transport passenger and freight cars to the Kentucky side. Among the incorporators are John C. Curtis of Huntington, Ind., and William Annan Taylor of Chicago, Ill.

MISSOURI PACIFIC.—This company intends to begin work in the early spring on its track elevation at Dodge, Douglas and Farnam streets, Omaha, Neb. For this purpose the federal court at St. Louis, Mo., has authorized B. F. Bush, receiver, to expend $200,000. It is the intention of the railroad ultimately to elevate the Belt Line tracks for a considerable distance beyond the point mentioned.

NEW YORK ROADS.—Plans are under way for the construction of a railroad to be laid along the bed of the abandoned Erie canal from the New York Central and Delaware & Hudson freight yards at Green Island, N. Y., to the northerly section of Cohoes. A large warehouse is also included in the improvements, to be built west of the old canal at Garner street. Mayor James S. Calkins, Cohoes, is said to be back of the project.

NORTH TEXAS & SANTA FE.—This is the name of a new company which contemplates building a line from Hannaford, Tex., to Shattuck, Okla., a distance of about 85 miles. Surveys have been completed, and the final details concerned with the titles to the right of way are being completed. About one-half of the construction will be through a level prairie country, while the other half will involve heavy work. Engineering headquarters have been established at Shattuck, Okla., and much material for the undertaking has already been delivered at that point. It is understood that the Atchison, Topeka & Santa Fe will assume control of the road on its completion.

OKLAHOMA & NORTHERN (ELECTRIC).—This is the name of a new electric interurban railway system shortly to begin construction from Miami, Okla., through Commerce to Columbus, Kan., with a branch line running from a point at or near Carden, Okla., to Baxter Springs, Kan., approximately 35 miles. The above is one division of an extensive system projected by this company, the main line of which is projected from Baxter Springs, Kan., through Nowata, Welsh and Miami, Okla., to Joplin, Mo., about 105 miles. W. K. Palmer Company, 919 Baltimore avenue, Kansas City, Mo.

PITTSBURG & SHAWMUT.—Work on the extension under construction between Cadogan, Pa., and Freeport, 8 miles is expected to be completed and ready for operation by December 1. (March 31, p. 773.)

VIRGINIA ROADS.—The Augusta Wood Products Company has under consideration the question of building a line, it is said, from Goshen, Va., on the Chesapeake & Ohio, to timberlands. J. F. Zimmerman, Goshen, is said to be interested.

WASHINGTON & LINCOLNTON.—This company, building from Washington, Ga., northeast via Metasville to Lincolnton, about 20 miles, has completed work on 13 miles of the line. J. R. Dyson, president, Washington. (February 4, p. 228.)

RAILWAY STRUCTURES

ANN ARBOR, MICH.—Bids will be called for on or about January 1 by the Michigan Central and the Michigan State Highways Commission for the construction of a reinforced concrete bridge 620 ft. long, over the Huron river near this city, to cost about $45,000. John J. Cox, Ann Arbor, Mich.

BOWLING GREEN, KY.—The Kentucky Railroad Commission has issued an order directing the Louisville & Nashville to replace its old station at Bowling Green, with a new structure.

BOLTON, CONN.—The elimination of a grade crossing on the New York, New Haven & Hartford at Bolton will be carried out by the railroad company and the state of Connecticut. The cost of this improvement will be about $8,000.

BUFFALO, N. Y.—The New York Central does not contemplate building at the present time a station on the Terrace at Buffalo. Negotiations with the Terminal Commission at Buffalo in regard to a site for a new station are under way, but no conclusion has as yet been arrived at.

GRANITE CITY, ILL.—The railroads entering this city intend very shortly to erect a new union passenger station to cost about $40,000. The plans provide for a subway under all the tracks of the several companies involved, except those of the Cleveland, Cincinnati, Chicago & St. Louis. The structure will be 99 ft. long, 25 ft. wide and will be of brick construction and have a slate roof.

MONROE, VA.—The Southern Railway has given a grading contract to Langhorne & Langhorne, Lynchburg, Va., to be carried out in connection with improvements to be made to its terminal yard at Monroe. Five tracks will be constructed east of the main line and three tracks on the west side will be extended which will increase the capacity of the yard by 680 cars, making it approximately 1,000 cars. For this improvement 20 acres of additional right of way was necessary, and there will be 170,000 yards of excavation. The work includes moving the present station; also the construction of a new highway bridge, air brake testing facilities and signal and interlocking devices. A modern water supply plant will also be installed.

NEW YORK.—The New York Public Service Commission, First district, has awarded to the Snare & Triest Company, New York City, the contract for the construction of concrete track floors and platforms over the mezzanine of eleven stations on the Culver Rapid Transit Railroad now under construction in the borough of Brooklyn. The contract price is $52,654. October 27, p. 774.)

ST. JOHN, N. B.—Bids are wanted until November 15, by J. W. Pugsley, secretary Department of Railways and Canals, Ottawa, Ont., for the construction of the superstructure of the reinforced concrete grain elevator to be built at St. John. The elevator is to have a capacity of 500,000 bushels. (September 8, p. 435.)

SIBLEY, LA.—The Vicksburg, Shreveport & Pacific has not yet decided to build a new combined passenger and freight station at Sibley to replace the structure damaged by fire.

Railway Financial News

MINNEAPOLIS & ST. LOUIS.—Hayden, Stone & Co. and J. S. Bache & Co., both of New York, who underwrote the readjustment of the Minneapolis & St. Louis finances, recently, have given an option to a banking firm on all of the underwriters' stock, and the Wall Street Journal says that this firm has also secured options on the stock of three of the largest individual shareholders. It is rumored that the road will be purchased in the interests of the Canadian Pacific.

MUSCATINE, BURLINGTON & SOUTHERN.—This is the name under which the Muscatine North & South, running from Muscatine, Iowa, to Burlington, 55 miles, has been reorganized and taken out of receivership.

PERE MARQUETTE.—A plan of readjustment worked out under the auspices of J. & W. Seligman, Robert Winthrop & Co. and E. V. R. Thayer as reorganization managers, and with the assistance of L. F. Loree, president of the Delaware & Hudson, has been made public.

The new plan is expected to accomplish these things:

The preservation of the railroad as a system and such control for the reorganized property as shall safeguard the rights of security holders.

Reduction of fixed charges to a limit believed, under all conditions, to be safely within the net earning capacity of the reorganized property.

Adequate capital provision for present and future requirements.

Payment or adjustment of all debts and provision for existing equipment trust obligations.

The plan provides for the sale under foreclosure of various mortgages of all the property of the company. The new company will have an authorized issue of $75,000,000 first mortgage bonds; $11,200,000 5 per cent cumulative prior preference stock; $12,429,000 5 per cent preferred stock, cumulative after January 1, 1919, and $45,046,000 common stock. All three classes of stock will be held for five years by a voting trust consisting of James S. Alexander, Francis R. Hart, Frederick Strauss, Eugene V. R. Thayer, Robert Winsor, and Beekman Winthrop.

The estimated cash requirements under the plan are $16,000,000, to provide for which a purchase syndicate consisting of J. & W. Seligman & Co., Robert Winthrop & Co., and Kidder, Peabody & Co. will purchase $6,000,000 first mortgage series A 5 per cent bonds, $11,200,000 5 per cent prior preference stock trust certificates, and $25,675,400 common stock trust certificates. The syndicate will pay for these securities $16,000,000 and accrued interest on the bonds and will receive a commission of 5 per cent on the maximum syndicate obligation of $16,000,000. No provision has been made for underwriting the cash required for payment to nonassenting holders of bonds or of any of the issues provided for in the plan.

The Guaranty Trust Company will form a loan syndicate of which it will be the manager. This syndicate will advance to the purchase syndicate funds up to 80 per cent of the par amount of prior preference stock and common stock not subscribed for by security holders. It is expected that these advances will be payable not later than January 1, 1919.

The reorganization managers will receive as compensation three-quarters of 1 per cent on the aggregate principal amount of the new bonds about to be issued and one-half of 1 per cent upon the aggregate par value of the three classes of new stock. The reorganization managers may participate in any of the syndicates.

ST. LOUIS & SAN FRANCISCO.—The following are the directors of the new company: F. W. Allen, E. N. Brown, Henry Ruhlender, J. W. Lusk, James Speyer, Frederick Strauss, E. V. R. Thayer, W. B. Biddle, Murray Carleton, Sam Lazarus, Charles H. Sabine, A. L. Shapleigh, Festus J. Wade, M. L. Wilkinson and W. C. Nixon. Mr. Ruhlender is chairman of the board. The new company began operation on Wednesday, November 1.

SOUTHERN RAILWAY.—See editorial comments in this issue on new financing.

TEXAS & PACIFIC.—Pearl Wight and J. L. Lancaster, first vice-president, have been appointed receivers of the Texas & Pacific. The receivership was on the application of B. F. Bush, receiver of the St. Louis, Iron Mountain & Southern. The following statement was given out at the New York office of the Texas & Pacific.

The appointment of receivers of the Texas & Pacific by the United States District Court at Shreveport, La., was the outcome of action taken by the board of directors at a recent meeting at which the financial position of the company was carefully considered. It has been recognized for years that the rigid financial structure of the Texas & Pacific has prevented it from raising money to enable it to reap the benefit of its excellent location, large gross earnings and limited fixed interest bearing debt. The continued use of its substantial net earnings for additions and betterments is injurious to the income bondholders and an unnecessary burden on the stockholders.

It is clear that with enough money provided to meet public requirements and secure economical operation an early readjustment will be for the good of all classes of security holders. Counsel advised that it would not be practicable to accomplish such a readjustment without judicial proceedings. The subject became imminent at this time because some of the suits on the company's overdue notes, aggregating about $3,000,000, which the company is unable to pay, were on the eve of trial.

Furthermore, proceedings are pending on behalf of income bondholders to enforce their claims. It seemed inadvisable to enter into a period of expensive litigation simply to defer a receivership, which in all probability would eventually be unavoidable, inasmuch as the interests of the stockholders and creditors could better be safeguarded by a financial readjustment. The board was advised that a plan of readjustment was under consideration, the details of which would be submitted to the stockholders at an early date.

The reorganization plan is being prepared by Kuhn, Loeb & Co. and Blair & Co.

A committee has been formed to protect the second mortgage income bondholders other than the St. Louis, Iron Mountain & Southern, consisting of Mortimer N. Buckner, chairman; Owen F. Roberts and Edward Schafer, with the New York Trust Company as depositary.

WESTERN MARYLAND.—See editorial comments in this issue on the reorganization plan.

WHEELING & LAKE ERIE.—At last the Wheeling & Lake Erie has been sold under foreclosure. The purchasers are the reorganization managers, Blair & Co. and Kuhn, Loeb & Co. The upset price was fixed at $12,000,000. This was the tenth time that the Wheeling & Lake Erie had been offered for sale.

TRANSPORTATION ROUTES IN CENTRAL AFRICA.—An important factor in the development of the trade and industries of the lake region of Central Africa and the territory between it and the Indian Ocean is the Uganda Railway, which extends from the port of Mombasa-Kilindini through 584 miles of plain and mountain country to Port Florence on Lake Victoria Nyanza. Over this lake in time of peace runs a fleet of vessels as an auxiliary service to the railroad. These ships call at the ports of Uganda, of German East Africa, and of British East Africa, all of which have a shoreline on this great inland sea. From the head of the Nile at Jinja to Namasagli on Lake Chiogo, the Busogo Railway runs for 61 miles, which in conjunction with the boats on the lake taps a large and prosperous community of Uganda. The Magadi branch of the Uganda Railway extends from the main line for 95 miles to Lake Magadi, where it opens to transportation the vast soda deposits of that region. The Thika Tramway extends from Nairobi to Fort Hall through a stretch of 31 miles of prosperous plantations. Thus by means of railway and water transportation, which form practically one system, expansive regions of eastern and central Africa are brought into communication with tidewater shipping at Mombasa. So the large importing houses that have their main offices in Mombasa are in a position to distribute imported goods to millions of natives in eastern and central Africa, and to collect their agricultural and pastoral products and consign them to numerous foreign markets.

[ADVERTISEMENT.]

ANNUAL REPORT

CHICAGO GREAT WESTERN RAILROAD COMPANY—REPORT FOR THE YEAR ENDED JUNE 30, 1916

To the Stockholders of the Chicago Great Western Railroad Company:

The Board of Directors submit herewith their report for the year ended June 30, 1916:

OPERATING REVENUE:

The detailed statement indicates an increase of $1,146,659.92 in the total Railway Operating Revenue in this year, over the preceding year, of which $1,107,224.46 was from transportation, $847,156.91 being from freight, and $206,606.32 from passenger.

Operating Revenue this year was the largest of any year since the organization of the present company, notwithstanding the decrease in the average revenue per ton mile from 7.00 mills in 1915, to 6.84 mills in 1916. This decrease in average revenue per ton mile alone diminished the freight revenue for 1916, $247,788. On the other hand, the average revenue per passenger mile in 1916 was 2.011 cents, as compared with 1.950 cents in 1915, which produced an increase of $100,085. in the total passenger revenue for 1916. Taken together these changes in the average revenues effected a decrease of $147,703. in the total revenue from transportation in 1916.

In considering the revenue in 1916, it should be borne in mind that more than the indicated increase for the year was earned in the eight months beginning with November, the total revenue for the first four months of the year (July to October inclusive) being $119,115, less than for the preceding year. This resulted from the unusual conditions growing mainly out of the European war.

OPERATING EXPENSES:

Briefly analyzing the Operating Expenses it is found:

MAINTENANCE OF WAY AND STRUCTURES increased $200,958., principally in Road Maintenance; Bridges, Trestles and Culverts; Rails; Other Track Material; Track Laying and Surfacing; Water Stations; Tools and Supplies, and Maintaining Joint Tracks, Yards and Other Facilities.

And decreased $94,747., principally in Ballast; Station and Office Buildings; Fuel Stations, Signals and Interlocking; Removing Snow and Ice, and Injuries to Persons.

The final increase under this heading was $106,211.

MAINTENANCE OF EQUIPMENT increased $199,324., principally in the following accounts:

Shop Machinery; Steam Locomotive Repairs; Steam Locomotive Retirements; Freight Train Cars Depreciation; Work Equipment Repairs; Work Equipment Depreciation, and Injuries to Persons.

And decreased $161,188., principally in Freight Train Cars Repairs; Freight Train Cars Retirements; Passenger Train Cars Repairs; Passenger Train Cars Retirements, and Work Equipment Retirements.

The final increase under this heading was $38,136.

TRAFFIC EXPENSES increased $5,119., principally in Advertising account. And they decreased $20,158., principally in the accounts of Outside Agencies; Traffic Associations, and Stationery and Printing.

The final decrease under this heading was $15,039.

TRANSPORTATION EXPENSES increased $182,566., principally in the following accounts:

Station Employes; Yard Conductors and Brakemen; Yard Enginemen; Fuel for Yard Locomotives; Train Enginemen; Fuel for Train Locomotives, and Trainmen.

And decreased $75,317., principally in Enginehouse Expenses; Operating Joint Yards and Terminals; Lubricants for Train Locomotives; Train Supplies and Expenses; Clearing Wrecks; Damage to Property; Loss and Damage of Freight, and Injuries to Persons.

The final increase under this heading was $107,249.

MISCELLANEOUS OPERATIONS increased $15,414., in the accounts of Dining and Buffet Service, and Hotels and Restaurants. Last year there was a credit of $467., while this year there was none.

The final increase under this heading was $15,881. (It will be noted that the revenues from dining cars and hotels and restaurants increased $20,405.46.)

GENERAL EXPENSES increased $24,319., principally in Valuation (Federal) Expenses and Joint Facilities, and decreased $15,742., principally in the accounts of Stationery and Printing, and Other Expenses.

Last year there was a credit of $14,256. growing out of settlement of an old account.

The final increase under this heading was $22,833.

The work done on the roadbed and track during the years ended June 30, 1916 and 1915, was as follows:

	1916	1915
BALLAST:		
Miles of track reballasted with gravel	30.52	145.35
Miles of track reballasted with rock	4.60	2.76
Miles of track reballasted with other material	7.15	13.52
Total miles of track reballasted	42.27	161.63
BRIDGES, TRESTLES AND CULVERTS:		
Lineal feet of bridges, trestles and culverts rebuilt or replaced	9,217.00	10,250.00
ROADBED:		
Miles of roadbed widened and grades rectified	52.00	6.59
Miles of ditching for roadbed drainage (track miles)	20.92	16.29
Number of cuts widened	70.00	17.00
Cubic yards of material moved	247,090.00	47,890.00
Miles of right of way fencing rebuilt (track miles)	49.56	41.79
Cross Fences and Cattle Guards	319.00	221.00
RAILS:		
Miles of track relaid with new 85-lb. steel rail	52.01	43.82
Miles of track relaid with 85-lb. relaying steel rail	18.08	.....
Miles of track relaid with 75-lb. relaying steel rail	18.94	19.59
Miles of track relaid with 60-lb. relaying steel rail	6.33	.....
Total miles of track relaid	95.36	63.41
CROSS TIES PUT IN TRACK:		
Total number treated cross ties	46,453	17,510
Total number untreated cross ties	512,582	341,982
Total number of cross ties put in track	559,035	359,492
Equal to miles of continuous track	194.11	124.82
TIE PLATES AND RAIL JOINTS:		
Total number of new tie plates	178,368	142,824
Equal to miles of continuous track	30.97	24.80
Total number of new rail joints	85,200	24,891
Equal to miles of continuous track	266.25	77.77

The work done upon the equipment during the year was as follows:

174 locomotives received heavy repairs and 60 received light repairs, at the average cost of $2,280.14 for the former, and $405.58 for the latter.

87 passenger-train cars received heavy repairs or rebuilding, and 94 received light repairs at the average cost of $903.29 for the former, and $167.56 for the latter.

Of freight-train cars 2,834 received heavy repairs and 83,115 received light repairs at the average cost of $128.67 for the former and $6.74 for the latter.

INDUSTRIAL DEVELOPMENT:

The following industries have been located on the company's line during the year:

BYRON—A grain elevator of 20,000 bushels capacity, a warehouse for storage of flour, feed and cement; coal sheds and a steel storage tank of 10,000 gallons capacity for storage of fuel oil.

FARIBAULT.—A large packing plant with capacity for slaughtering from 800 to 2,000 hogs per day is in process of construction and will be ready for operation about October 1, 1916.

FT. DODGE—A plant for the manufacture of gypsum plaster block has been considerably enlarged.

GOODHUE—Grain elevator reopened.

HAYFIELD—New coal and cement sheds erected.

LAMONT—Lumber yard established.

LILY LAKE—A concrete elevator of 30,000 bushels capacity has been constructed.

MARSHALLTOWN—A new grain elevator has been erected. The tracks of the company have been extended to a factory for small finished castings and to the plant of a lumber company dealing in lumber and building material.

MINNEAPOLIS—An elevator of 100,000 bushels capacity, located on the company's property, is in process of construction. The plant of an oil company located on property leased from this company has been enlarged by the addition of two storage tanks, each of 200,000 gallons capacity, for storage of gasoline, and six tanks, each of 12,000 gallons capacity, for storage of lubricating oil.

OMAHA—A boiler construction plant has been erected on the terminals of the company, and the elevator capacity of an alfalfa mill has been enlarged. A paper-stock company has constructed a new warehouse on land leased from this company, thereby increasing its capacity about fifty percent. A grain company has in process of construction two additional concrete tanks, each of 20,000 bushels capacity, for storage of grain, which will be completed about the middle of October, 1916.

PETERSBURG—A warehouse for storage of agricultural implements has been erected.

PINE ISLAND—A feed warehouse has been erected by an elevator company.

RENOVA—Coal sheds have been erected by a coal, lumber and grain company.

ROCHESTER—The warehouse of a dealer in hides, furs, wool and tallow has been enlarged, and additions to the coal storage facilities of three establishments located on the company's right of way have been made.

ST. CHARLES, ILL.—The capacity of the plant of a malleable iron company, located at this station, has been increased more than twenty-five per cent, and sheds for the storage of coke have been located on this company's right of way.

ST. JOSEPH—A hardware company has erected a six-story building served by the company's tracks. The establishments of a wool company and of a hide and fur company have been located on the company's right of way. The plant of a structural steel company has been enlarged.

ST. PAUL—A flour mill of 1,000 barrels per day capacity has been erected.

STANTON—The plant of a company handling lumber, coal and building material has been located on the company's right of way.

ZUMBROTA—An elevator and coal sheds have been erected.

In addition to the foregoing, the Standard Oil Company has established new distributing stations at Conception, Elizabeth, Hudson, Irwin, Lamont, Lanesboro, Lehigh, Pine Island and Vincent.

ECONOMIES:

By the installation of a plant for reclaiming and repairing track material, by welding machines, electrical machines of various kinds, and many minor improvements to tools and machinery, a saving of $22,054 per annum has been effected.

The saving from the use of gasoline section cars in place of the old fashioned hand car has continued, and the experience in their use since their installation some years ago has been most gratifying. They are saving approximately $39,000 per annum, with greater efficiency in the work of the section forces.

The modern coaling stations which have been installed from time to time are now effecting a saving of $31,000 per annum.

By the substitution of gasoline and oil engines and electricity for the old steam plants at water stations an average annual saving of $26,000 is now being realized.

EQUIPMENT:

The equipment has been increased during the year by additions as follows:

1 Steel postal car,
1 Russell Wing snow plow,
2 Automatic dump cars,
5 Switching locomotives,
10 Mikado-type freight locomotives.

Contracts have been made for additional equipment which had not been delivered before the close of the year, as follows:

3 Pacific-type passenger locomotives,
7 Santa Fe-type freight locomotives,
10 Switching locomotives,
2 Steel dining cars,
2 Parlor-Observation cars.

GENERAL REMARKS:

This year shows the largest gross and net earnings in the history of the company.

The present company has always been provided with equipment and track facilities to meet any sudden increase in business, and the officers have been diligently working for the last six years in an effort to get the gross earnings more nearly up to the capacity of the property. The year marks the first in which any fair test of the facilities of the road has been made.

It has been the thought of the Board of Directors from the first that if the gross earnings could be raised to fifteen million dollars, or approxi-

mately ten thousand dollars per mile, the net earnings would be equal to at least four percent on the preferred stock. This report verifies that prediction. The physical property and its locomotive equipment are today in shape to handle a gross business on present rates of twenty million dollars per annum.

What might be termed the overhead charges. i. e., taxes and rentals, have always been heavy, owing to the extensive use of other lines by the Chicago Great Western in reaching its terminals. These charges, including as rental the interest on the Mason City & Ft. Dodge bonds, amounted to $1,170,701, leaving a surplus of $2,796,792—nearly three times the annual interest on the outstanding first mortgage bonds of the Chicago Great Western Railroad.

The Company has no floating debt, short term notes, equipment trusts or any obligations due prior to January 1, 1950.

Owing to the strong cash position of the company it was able to save during the year $26,155. through discount of bills for materials and supplies purchased. The total amount so saved since September 1, 1909, is $119,329.

During the year the company earned interest on its bank balances $57,665. The total so earned since September 1, 1909, is $530,920.

A careful study of Exhibit 12 will prove of interest. It shows what has been accomplished by the expenditure of $19,444,000, or $13,788 per mile of road, on the property since its organization. The increase in Net Income yielded a return equal to 12.74% on the total expenditure.

Operating Revenue in the year shows an increase of 39.46% over 1909; Operating Expenses increased but 17.32%; Taxes, over which the company has no control, increased 57.75%. Nevertheless, the Percentage of Operating Expenses and Taxes has been reduced 14.8%, and the Net Operating Income increased 189.2%.

Among the causes contributing to this improved result is the reduction of 27.1% in Freight Train Mileage while Revenue Ton Mileage increased 41.92%; consequently the Average Revenue Tons Per Train Mile increased 94.68%, and the Revenue Per Freight Train Mile increased 93.33%. Revenue Per Ton Mile decreased .58%. It will be noted that the Average Tons of All Freight Per Train Mile this year were 610.16—a record that will compare favorably with any western line.

In the conduct of the passenger business, as compared with 1909, Passenger Train Mileage was reduced 10.36%, while Passengers One Mile increased 18.08%; Revenue Per Passenger Mile increased 11.9%; Passenger Revenue Per Train Mile increased 46.38%.

Much stress has been laid in recent years on the ratio of Transportation Expenses to total Operating Revenue. A reference to Exhibit 10 will show that the Great Western's Transporation ratio has been reduced to 34.9%, which, considering the fact that included in the Transportation account is freight paid on company coal, of $549,597, while many other lines with which it competes have abundant coal supplies on their own lines, shows in another way what has been accomplished by the additional capital expenditures on the property.

Claims paid for loss and damage of freight in 1909 amounted to 3.27% of the freight revenue. In 1916 1.8%, being a decrease of 44.95% in this one item.

During the year two dividends, one December 1, 1915, and the other May 1, 1916, of one percent each, were paid on the preferred stock of the Company out of the income since July 1, 1914, when the dividend on the preferred stock became cumulative.

The reserve account for accrued depreciation is as follows:

Total amount charged in the Operating Expenses, September 1, 1909, to June 30, 1915	$804,600.89
Total amount thereof applied in connection with equipment retired to June 30, 1915	71.661.73
Balance of reserve brought over at beginning of this year	732,939.16
Amount charged to Operating Expenses and credited to the reserve account in this year	169,261.58
Amount of reserve applied in connection with retirements of equipment during this year	21,979.45
Amount at credit of accrued depreciation account June 30, 1916	880,221.29

The amount charged to Operating Expenses and credited to reserve accounts for depreciation of equipment this year shows an increase of $20,506.36 over last year, and it is deemed to be ample to cover the actual depreciation accruing during the period.

The gross earnings since the close of the year down to the middle of September show an increase of $467,000, or 15.7%, which is exceedingly gratifying. There is every indication of this increase being maintained through the month of October; but after November first, to the end of the fiscal year, comparison will be made with the largest earnings ever made in that period by the present Company.

The following statement showing the return on the investment in Road and Equipment from date of organization of the present company (September 1, 1909) to June 30, 1916, will prove of interest:

Years ended June 30:	Property Investment.	Income Applicable to Bond Interest, Dividends, Improvement of Property and Strengthening of Credit.*	Per Cent Income of Property Investment.
1910 (10 months)	$118,467,316.67	$1,676,496.23	1.42
1911	123,371,726.67	2,304,847.65	1.87
1912	125,721,548.08	1,813,549.01	1.44
1913	127,345,039.29	2,876,611.11	2.26
1914	128,229,157.66	2,526,172.25	1.97
1915	129,295,600.78	2,371,808.78	1.83
1916	129,933,872.64	3,177,152.10	2.44

*The "Income" shown here is determined after allowing for adjustments made through profit and loss.

The amount earned in the year just closed capitalized at 7% is equal to $32,187 per mile of road, a sum probably not half the cost of reproducing the present railroad and its equipment.

Your Directors announce with deep sorrow the death of Mr. Charles H. Conover, at Chicago, on Thursday, November 4, 1915.

Mr. Conover was a highly valued and respected member of your Board of Directors and his loss is deeply mourned.

Appropriate resolutions in respect to his memory were adopted by the Board, and a copy thereof forwarded to his family.

For detailed information as to income, balance sheet, traffic and other statistics reference is invited to the following pages.

The Board of Directors takes this opportunity to express its appreciation to the officers and employes of the Company for their faithful and efficient services.

By Order of the Board,

SAMUEL M. FELTON,
President.

CHICAGO GREAT WESTERN RAILROAD COMPANY

COMPARATIVE STATEMENT OF REVENUES, EXPENSES AND SUNDRY STATISTICAL DATA FOR THE EIGHT YEARS 1909 TO 1916 INCLUSIVE

EXHIBIT 12

FOR TWELVE MONTHS ENDED JUNE 30,	1909	1910	1911	1912	1913	1914	1915	1916	Per cent of Increase in 1916 over 1909
Average Miles of Road Operated	1,475.61	1,498.25	1,492.16	1,496,22	1,496.22	1,496.22	1,427.91	1,455.55	(a) 1.36
Freight Revenue	$7,434,148	$8,540,591	$8,820,370	$8,879,748	$9,795,074	$9,943,575	$9,645,527	$10,492,684	41.14
Passenger Revenue	2,482,104	2,642,357	2,844,471	2,891,153	3,144,284	3,205,992	3,074,050	3,280,656	32.17
Miscellaneous Revenue	887,597	968,147	1,050,371	1,113,816	1,160,620	1,200,172	1,201,108	1,294,005	45.79
Operating Revenue	$10,803,849	$12,151,095	$12,715,212	$12,884,717	$14,099,978	$14,349,739	$13,920,685	$15,067,345	39.46
Operating Revenue per Mile of Road	7,322	8,110	8,521	8,612	9,424	9,591	9,749	10,352	41.38
Operating Expenses	$9,143,701	$9,233,354	$9,537,182	$10,097,463	$10,357,209	$10,923,634	$10,450,728	$10,727,167	17.32
Taxes	350,645	364,308	384,503	406,725	439,419	499,082	580,026	553,129	57.75
Operating Expenses and Taxes	$9,494,346	$9,597,662	$9,921,685	$10,504,188	$10,796,628	$11,422,716	$11,030,754	$11,280,296	18.81
Per Cent of Operating Expenses	84.63	75.99	75.01	78.37	73.46	76.12	75.07	71.19	(a) 15.88
Per Cent of Operating Expenses and Taxes	87.88	78.99	78.03	81.52	76.57	79.60	79.24	74.87	(a) 14.80
Net Operating Income	$1,309,503	$2,553,433	$2,793,527	$2,380,529	$3,303,350	$2,927,023	$2,889,931	$3,787,049	189.20
Freight Train Mileage	3,814,296	3,935,939	3,324,432	3,065,876	2,973,434	2,873,129	2,607,354	2,780,596	(a) 27.10
Revenue Tonnage	.....	4,623,102	5,023,079	5,054,478	5,306,774	5,557,858	5,642,764	5,959,813	(b) 28.91
Revenue Ton Mileage	1,081,120,854	1,189,185,332	1,227,893,035	1,225,238,896	1,337,724,849	1,364,026,080	1,378,504,602	1,534,353,175	41.92
Revenue Ton Mileage per Mile of Road	732,660	793,716	822,896	818,890	894.070	911,648	965,400	1,054,140	43.88
Average Revenue per Ton per Mile (cents)	0.688	0.718	0.718	0.725	0.732	0.729	0.700	0.684	(a) .58
Revenue per Freight Train Mile	$1.95	$2.17	$2.65	$2.90	$3.29	$3 46	$3.70	$3.77	93.33
Average Revenue Tons per Train Mile	283.45	302.13	369.35	399.64	449.89	474.75	528.70	551.81	94.68
Average Tons All Freight per Train Mile	325.84	343.24	422.05	434.23	483.72	511.90	574.13	610.16	87.26
Tons per Loaded Car—Revenue Freight	16.07	16.59	17.17	17.66	18.14	18.56	18.77	18.87	17.42
Tons per Loaded Car—All Freight.	18.47	18.97	19.81	19.25	19.53	20.02	20.38	20.86	12.94
Average Capacity of Freight Cars	28.22	31.13	33.02	34.11	34.45	34.63	35.49	35.60	26.15
Passenger Train Mileage	3,610,904	3,163,889	3,106,052	3,088,396	3,104,876	3,228,344	3,222,758	3,236,709	(a) 10.36
Passengers Carried	.....	2,398,685	2,651,371	2,500,014	2,651,096	2,817,637	2,825,496	2,809,058	(b) 17.11
Passengers Carried One Mile	138,134,435	138,735,465	149,225,662	143,642,671	153,998.072	160,199,058	157,642,318	163,106,201	18.08
Passengers Carried One Mile per Mile of Road	93.612	92,598	100,006	96,004	102,925	107,069	110,401	112,058	19.70
Average Revenue per Passenger Mile (cents)	1.797	1.905	1.906	2.013	2.042	2.001	1.950	2.011	11.91
Passenger Revenue per Train Mile	$ .69	$ .84	$ .92	$ .94	$1.01	$ .99	$ .95	$1.01	46.38
Passenger Train Revenue per Train Mile	$ .86	$1.05	$1.15	$1.18	$1.26	$1.24	$1.21	$1.27	47.67
Average Passengers per Train Mile.	38	44	48	47	50	50	49	50	31.58

(a)—Indicates Decreases.
(b)—Indicates Increases over 1910.